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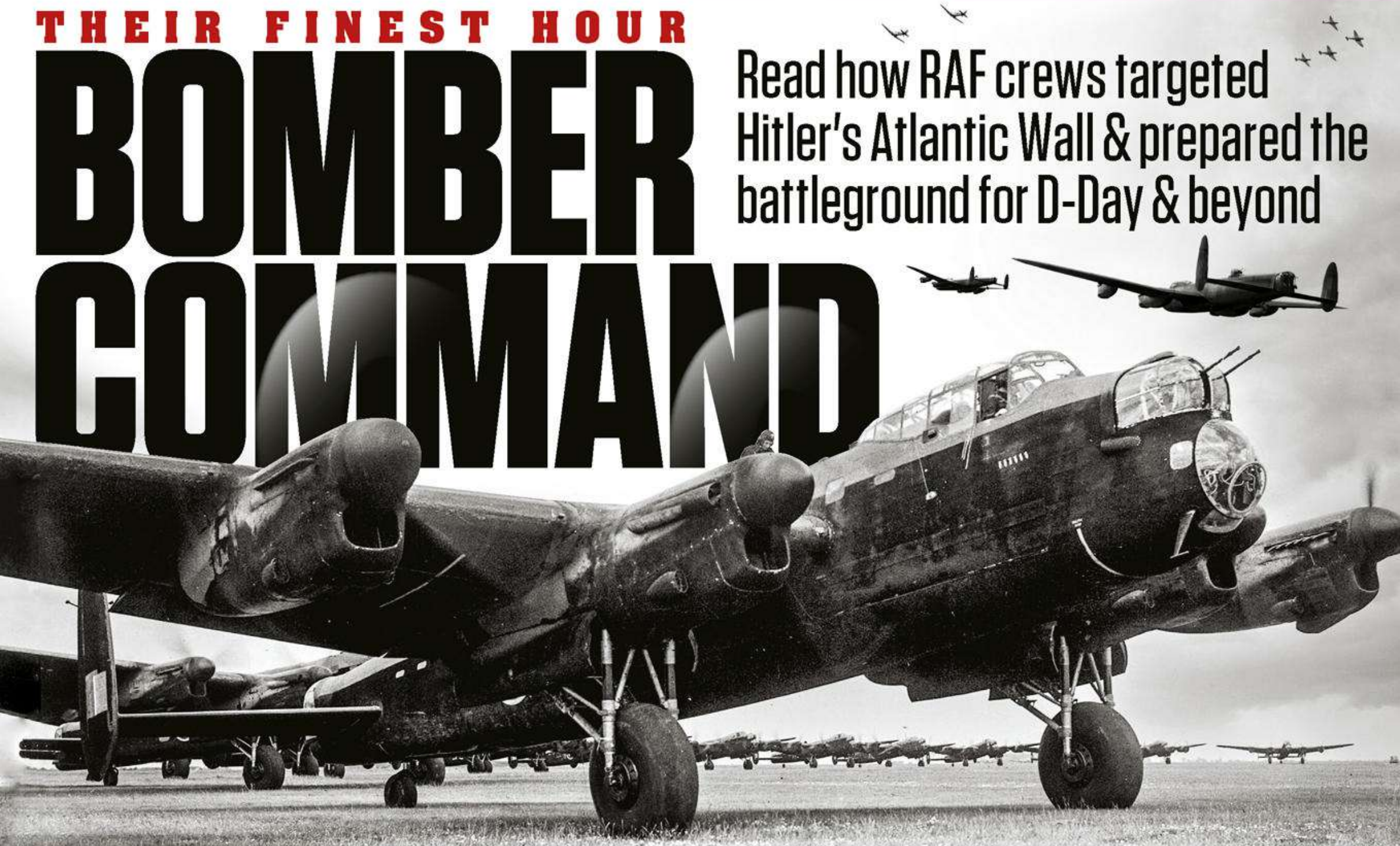

HO CHI MINH'S ART OF WAR

Uncover the winning strategies of Vietnam's revolutionary leader

BATTLE OF SHREWSBURY

How a bloody longbow duel was decisive in this clash for the crown

FUTURE
ISSUE 117

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SCAN TO GET OUR WEEKLY NEWSLETTER

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Above: RAF Bomber Command's raids took a devastating toll on the Nazi war machine

CONTRIBUTORS

MICHAEL HASKEW

The Leopard I, West Germany's first post-war tank, was built in vast numbers and fielded by several NATO countries during the Cold War. On page 56, Mike takes a look inside this formidable main battle tank and how its design shaped up against its Warsaw Pact rivals.

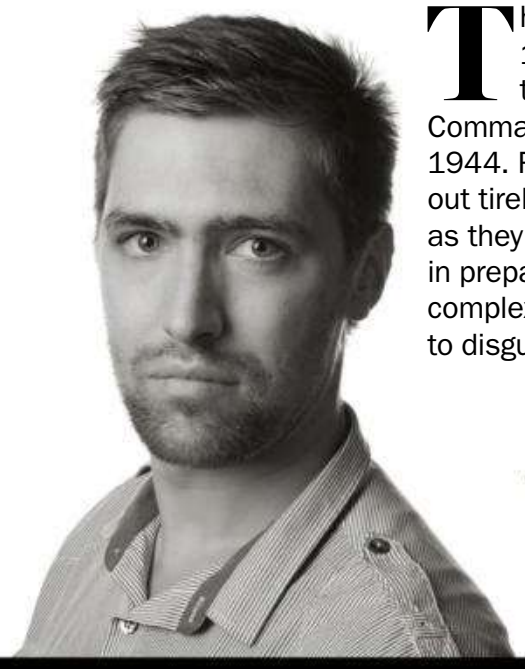
STUART HADAWAY

RAF researcher and historian Stuart has taken a look at the critical missions carried out by Bomber Command in the build up to D-Day. He reveals how crews targeted Hitler's Atlantic Wall and fooled German radar (p24).

IAN GARDNER

Ian is a former member of the 10th Battalion, Parachute Regiment, and now a military historian with an expertise in the Allied paratroopers of the Second World War. On page 68 he discusses his latest book *Sign Here For Sacrifice*, on the 3rd Battlalion, 506th Airborne, in Vietnam.

Welcome



Though perhaps best known for its audacious 'Dam Buster' raid in 1943, and later the devastating bombing of German cities towards the end of the war in Europe, perhaps the finest hour of Bomber Command came in the crucial build up to the D-Day landings in June 1944. RAF researcher Stuart Hadaway recounts the missions carried out tirelessly by bomber crews during the spring and summer that year, as they targeted enemy infrastructure and softened Hitler's Atlantic Wall in preparation for Operation Overlord. Stuart also details the extremely complex deception missions carried out by bomber crews, who managed to disguise their aircraft as a naval flotilla to enemy radar.

Tim Williamson
Editor-in-Chief

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This Australian major distinguished himself on several occasions during the Vietnam War

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WAR in FOCUS

THE SURRENDER OF BREDA

1634-35

Painted by Spanish artist Diego Velázquez, *The Surrender of Breda* depicts the capitulation of the Dutch to the Spanish at the Siege of Breda on 5 June 1625 during the Eighty Years' War. In the painting, the Dutch commander Justinus van Nassau (left) symbolically hands over the key of Breda to the victorious Italian-Spaniard Ambrogio Spinola while weary soldiers look on. Velázquez personally knew Spinola, with the painting being commissioned by King Philip IV of Spain. It is considered one of the finest paintings in Spanish art.

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WAR in FOCUS

WAGONS AT ISANDLWANA

Mid-1879

The Battle of Isandlwana (22 January 1879) saw the British Empire suffer a humiliating defeat at the hands of the Zulu Kingdom. Over 1,300 Imperial soldiers were killed at their camp by an army of around 10,000-15,000 Zulus in a bloody engagement that forced the British to temporarily halt their invasion of Zululand. It took the British months to return to Isandlwana to bury their dead, which is when this photograph was taken. The battlefield can be seen littered with abandoned British wagons and equipment.

WAR in FOCUS

HOSING DOWN THE BLITZ

c.1939-45

Firefighters test their hoses in London during WWII. The British capital's fire brigade was part of the National Fire Service and was assisted by the voluntary Auxiliary Fire Service (AFS). Many AFS firemen were too old or too young to join the armed forces, and it also included women. During the first 22 nights of the Blitz in late 1940, London's firefighters fought almost 10,000 fires, with 327 losing their lives by 1945. Londoners affectionately called the firefighters "the heroes with grimy faces".

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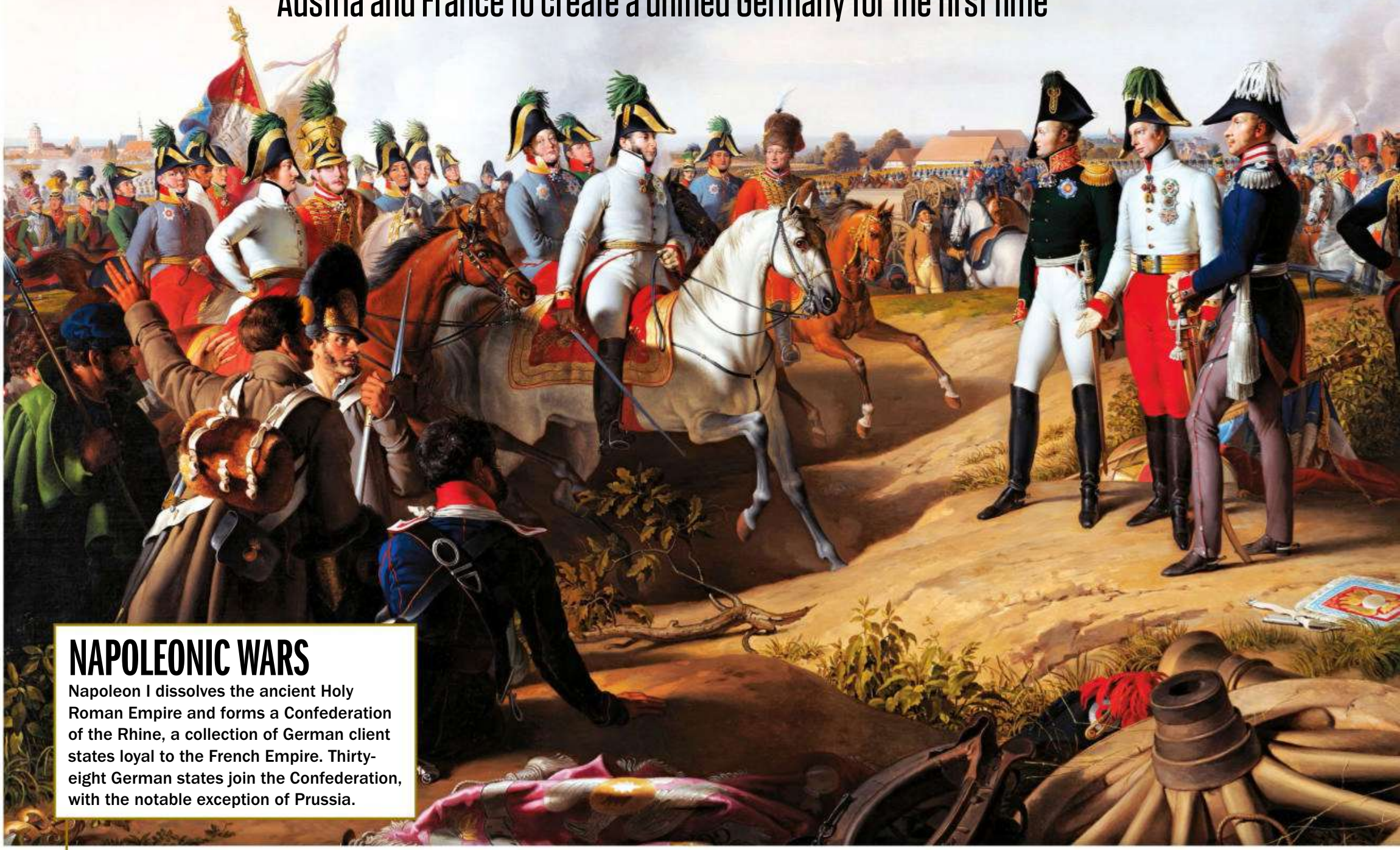
22-Z
22-Y
22-X

TIMELINE OF THE...

GERMAN WARS OF UNIFICATION

Prussia leads victorious coalitions of German states in wars against Denmark, Austria and France to create a unified Germany for the first time



NAPOLEONIC WARS

Napoleon I dissolves the ancient Holy Roman Empire and forms a Confederation of the Rhine, a collection of German client states loyal to the French Empire. Thirty-eight German states join the Confederation, with the notable exception of Prussia.

1806-15

The Federal Convention is held at the Palais Thurn und Taxis in Frankfurt

GERMAN CONFEDERATION

At the end of the Napoleonic Wars, a confederation of 39 predominantly German-speaking sovereign states is formed by the Congress of Vienna. It replaces the Holy Roman Empire but the states are only unified by an assembly known as the Federal Convention.

1815-66

REVOLUTIONS 01

Revolutions break out across the Confederation to unite Germany under a single constitution. A freely elected German parliament is briefly held at Frankfurt but King Friedrich Wilhelm IV of Prussia refuses to accept its offer of becoming the emperor of a unified constitutional monarchy.

Revolutionaries wave the German horizontal tricolour for the first time in Berlin, March 1848

February 1848 – July 1849

'BLOOD AND IRON' 02

Otto von Bismarck, minister-president of Prussia, gives a speech that emphasises Prussian military preparedness to solve the 'German Question' of unification. He criticises the political efforts of 1848-49, before declaring: "The great questions of the day [will] be decided… by iron and blood."

Bismarck is the key figure of German unification and in 1871 becomes the German Empire's first chancellor

30 September 1862

Many German states leave the Confederation of the Rhine after Napoleon is defeated at the Battle of Leipzig in October 1813

Members of the German and Danish armed forces have conducted annual joint commemorations on the battlefield of Dybbøl since 2011

BATTLE OF DYBBØL 03

The Prussians heavily defeat the Danes in southeast Jutland in a battle that decides the outcome of the Second Schleswig War. Dybbøl forces Denmark to negotiate a new border with the German Confederation.

1 February – 30 October 1864

SECOND SCHLESWIG WAR

Prussian and Austrian forces invade the Danish territory of Schleswig. Denmark loses one-third of its territory and 40 percent of its population, including the territories of Schleswig, Holstein and Saxe-Lauenburg. The effectiveness of the reorganised Prussian armed forces is also demonstrated.

The war is considered a national trauma in Denmark. It doesn't fight in a conflict outside its borders until the NATO bombing of the Federal Republic of Yugoslavia in 1999

7-18 April 1864

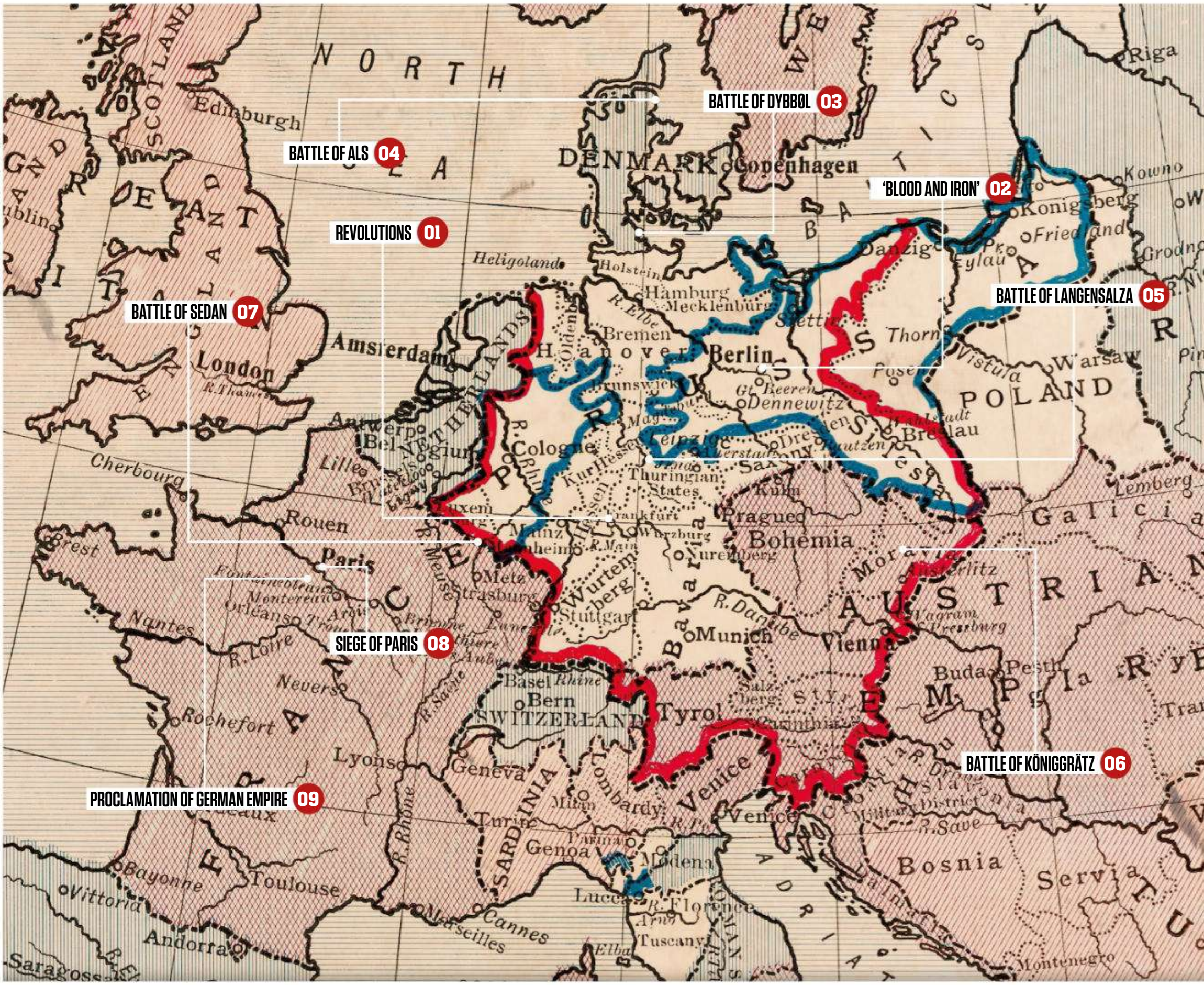
BATTLE OF ALS 04

Fought on and near a Baltic island, this battle is the last major engagement of the Second Schleswig War. The Danes suffer 3,000 casualties against the Prussians and the Danish government collapses.

29 June-1 July 1864

An 1866 depiction of the Prussian storming of Als by German painter Wilhelm Camphausen

Images © Alamy



14 June – 22 July 1866

AUSTRO-PRUSSIAN WAR

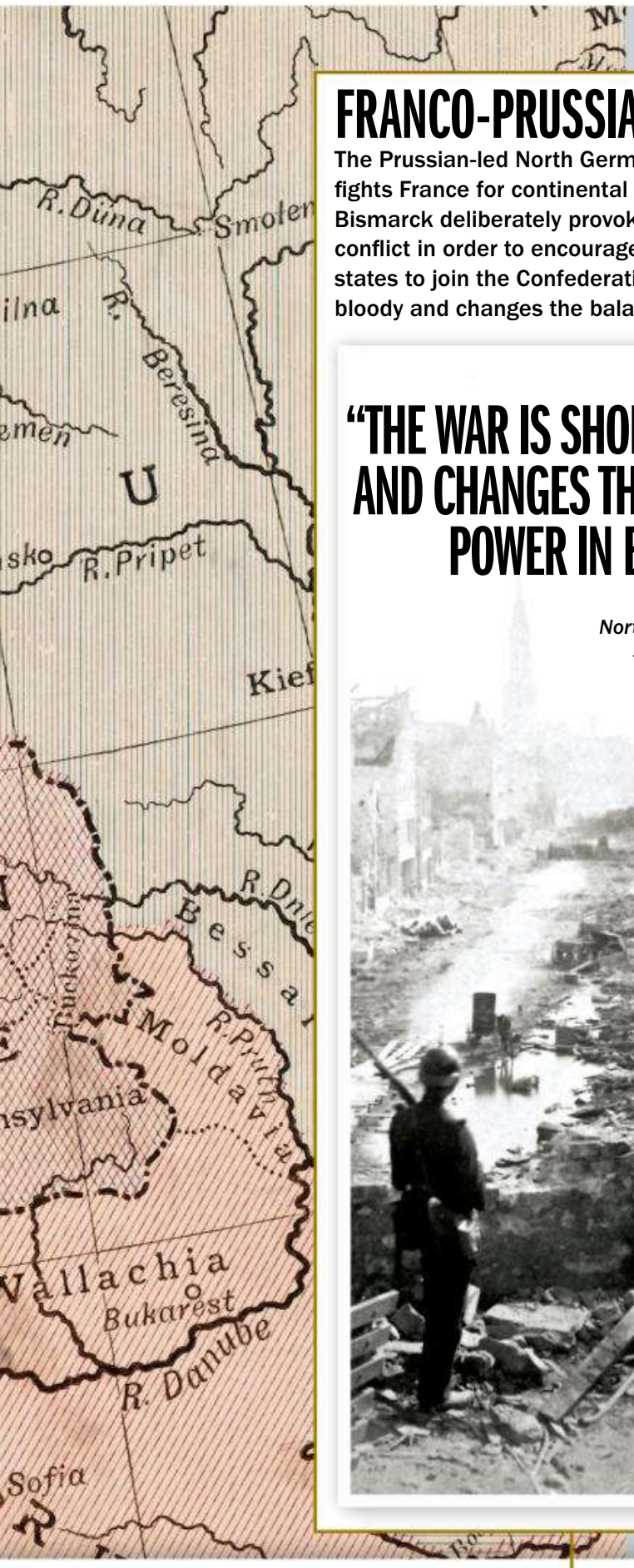
Sometimes known as the Seven Weeks' War, this conflict sees a Prussian-led coalition of German states and the recently unified Italy fight the Austrian Empire and its own German allies. Prussia and Italy win the war, and Austria loses its hegemony over the German states.

27 June 1866

BATTLE OF LANGENSALZA 05

The forces of Prussia and Saxe-Coburg-Gotha fight Hanoverian soldiers. The Hanoverians win the battle but are surrounded by the numerically superior Prussians and are forced to surrender. Hanover, along with Kassel and Saxony, are annexed by Prussia.

Prussian artillerymen are attacked by the Hanoverians at Langensalza



FRANCO-PRUSSIAN WAR

The Prussian-led North German Confederation fights France for continental dominance in Europe. Bismarck deliberately provokes the French into conflict in order to encourage four southern German states to join the Confederation. The war is short but bloody and changes the balance of power in europe.

"THE WAR IS SHORT BUT BLOODY AND CHANGES THE BALANCE OF POWER IN EUROPE"

North German Confederation soldiers look out over the ruins of Strasbourg

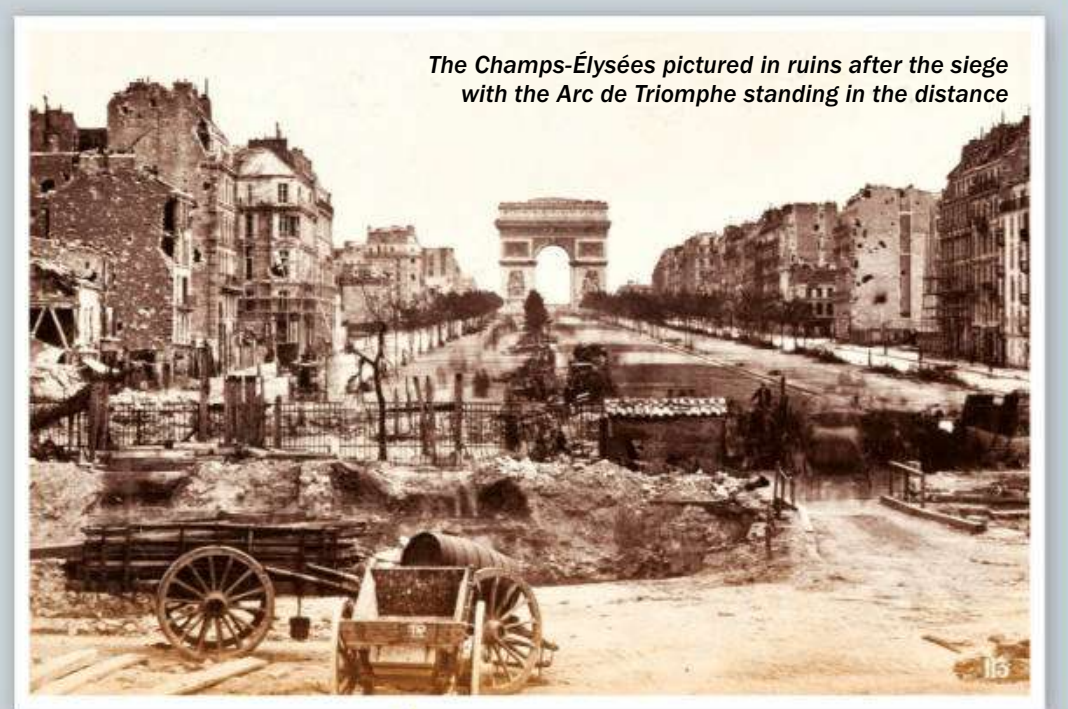
PROCLAMATION OF GERMAN EMPIRE 09

Wilhelm I, King of Prussia, is declared German emperor at the Palace of Versailles. Four southern German states, including Bavaria, are also incorporated into the empire. This marks the official foundation of a unified Germany.

Anton von Werner's famous 1885 painting of the proclamation. Bismarck is depicted wearing a white uniform in the near-centre

SIEGE OF PARIS 08

Despite the fall of Napoleon III, the French capital holds out against the North German Confederation in a siege that lasts four months. Paris eventually surrenders, with the capitulation of 249,142 soldiers. Confederation troops triumphantly enter the city.



The Champs-Élysées pictured in ruins after the siege with the Arc de Triomphe standing in the distance

1870-71

19 September 1870 – 28 January 1871

3 July 1866

1-2 September 1870

18 January 1871

BATTLE OF KÖNIGGRÄTZ 06

The decisive battle of the Austro-Prussian War sees Prussian troops heavily defeat Austrian and Saxon forces in Bohemia. The Austro-Saxons suffer over 44,000 casualties, with Königgrätz enabling the Prussians to form the North German Confederation – a vital step towards unification.

Bismarck consults with Prussian chief-of-staff Helmuth von Moltke at Königgrätz

BATTLE OF SEDAN 07

Emperor Napoleon III of France is captured and forced to abdicate following his huge defeat against the North German Confederation. The French Army of Châlons is destroyed with over 120,000 casualties, including 104,000 prisoners.

Napoleon III surrenders his sword to Bismarck after Sedan with King Wilhelm I of Prussia in attendance

Images © Alamy, Getty

CONFEDERATION OF THE RHINE

After dissolving the Holy Roman Empire, Napoleon established a pro-French military alliance of German states that loosely resembled a united Germany

After Napoleon defeated Austria and Russia at the Battle of Austerlitz on 2 December 1805 he was the 'Master of Europe' and could dictate terms on his continental enemies. Upon hearing the news of Austerlitz, British Prime Minister William Pitt referred to a map of Europe and said to an aide: "Roll up that map; it will not be wanted these ten years."

Pitt's words were prescient, particularly when it came to Germany. In July 1806, 16 German states joined together in a new body called the Confederation of the Rhine. Overseen by Napoleon, the French emperor became the hereditary protector of the new Confederation. There was also a German prince-primate who presided over a quasi-parliamentary body known as the Diet.

The Confederation was designed as a collection of German satellite states that supported the First French Empire. To maintain this disparate group, Napoleon was constitutionally canny. He dissolved the ancient Holy Roman Empire, which meant that the German states no longer held nominal allegiance to Habsburg Austria. Some states were given higher statuses, such as Bavaria and Württemberg, which were upgraded to kingdoms. Others became Model States that were directly ruled by Napoleon's relatives. The Kingdom of Westphalia was ruled by Napoleon's youngest brother Jérôme Bonaparte, while the Grand Duchy of Berg was governed by the emperor's brother-in-law Marshal Joachim Murat.

The Confederation was at its largest in 1808 when it included 36 states of varying sizes. As well as kingdoms and duchies, it consisted of 17 principalities and city-states such as Hamburg, Lübeck and Bremen.

By excluding Austria and rewarding client states while making others family domains, the Confederation enabled Napoleon to create a pro-French German military alliance. All members had to maintain large armies and provide France with substantial numbers of soldiers. This had the effect of isolating Prussia, the only German state with an army powerful enough to oppose Napoleon.

Napoleonic service

The Confederation's military value to the French was first demonstrated during the War of the Fifth Coalition against Austria in 1809. Over 100,000 German soldiers from Bavaria, Saxony, Westphalia and Württemberg fought for Napoleon, including at the key Battle of Wagram. The conflict had begun when Austria invaded Bavaria, with the Austrian Foreign Minister Johann Stadion claiming to "restore to Germany the independence and national honour that belong to her".

In the event, Confederation soldiers fought alongside their French counterparts with courage and skill. The French victory in this war drove a wedge between Austria and its fellow German-speakers, with the Confederation remaining loyal to Napoleon for years.

Perhaps the zenith of the German military contribution to the French during the Napoleonic

Bavarian and Saxon soldiers helped Napoleon to win the Battle of Wagram during 5-6 July 1809 in a Confederation military formation called the Armée d'Allemagne (Army of Germany)

The Confederation of the Rhine was a disparate group held together by Napoleon's astute political manoeuvring

Wars was the infamous invasion of Russia in 1812. German soldiers were the third-largest non-French contingent in the Grande Armée after Polish and Italian units. A total of 61,000 Bavarians, Saxons and Westphalians participated in the invasion with additional troops from Württemberg, Hesse, Berg and Baden. Thanks to Napoleon's various victories and treaties in the preceding years there were even Prussian and Austrian contingents in his invading force, although they were unenthusiastic allies.

The Confederation troops in the Grande Armée were of high quality and generally loyal to Napoleon. Many wanted to prove the prowess of German arms while others were keen to fight the Russians. The Saxons were noted cavalrymen while the Bavarians had fought for France on several occasions. It was even observed that many German soldiers resented the Prussians more than the French.

Nevertheless, there were growing voices of dissent with the Confederation forces. The principal minister of Westphalia noted that Westphalian troops could potentially "cause trouble, mainly through large-scale desertion". Not all Germans fought for Napoleonic ideals and when most of the Grande Armée was destroyed after invading Russia, some Confederation states began to doubt their allegiance to France.

Destruction at Leipzig

Parts of northwest Germany had already been directly annexed to France in 1810 and in 1813 the Confederation dramatically collapsed. During the War of the Sixth Coalition (1813-14), a campaign was fought against Napoleon inside Germany by the forces of Austria, Prussia, Russia and Sweden. Confederation troops fought for the French but at the decisive Battle of Leipzig in October 1813, Mecklenburg-Schwerin, Saxony and Württemberg defected to the Sixth Coalition.

The Confederation of the Rhine was dissolved shortly afterwards on 4 November 1813. After Napoleon was finally defeated, its states were declared independent by the Treaty of Paris on 30 May 1814. During the subsequent Congress of Vienna, direct Napoleonic creations such as Westphalia were abolished but most ex-Confederation members retained their borders. It was these states, along with Prussia and Austria, which formed the German Confederation of 1815-48.

In retrospect, Napoleon's Confederation had imbued its member states with a sense of collective effort and pride in the military skills of their armies that was separate from Austria and Prussia. Austria became more politically detached from its German counterparts while Prussia saw an opportunity to assert its dominance over the former Confederation states. In this sense, the Confederation of the Rhine was an important stepping stone on the long road to German unification.

"THE CONFEDERATION WAS DESIGNED AS A COLLECTION OF GERMAN SATELLITE STATES THAT SUPPORTED THE FIRST FRENCH EMPIRE"

Images: Alamy

1848 & 1864
SCHLESWIG WARS

Prussian leader Otto von Bismarck's first roll of the iron dice came in a war against two duchies controlled in part by Denmark

The Schleswig Wars were fought over the destiny of Schleswig and Holstein, the two duchies at the base of the Jutland Peninsula. Both were ruled by the king of Denmark as their duke, but while Schleswig was part of Denmark, Holstein was a member of the German Confederation. The mixed population of Schleswig (Danish in the north and German in the south) also complicated matters. Danish nationalists wanted to separate Schleswig formally into Denmark, while German nationalists wanted to combine the two duchies as one within the German Confederation.

The First Schleswig War of 1848 began with the dilemma over who would succeed the heirless King Frederick VII of Denmark. While it was likely he would be succeeded by Prince Christian of Oldenburg, the two duchies would go to Prince Frederick of Augustenburg. In 1848, Frederick announced a constitution that would rule both Denmark, Schleswig and Holstein under a single system. But the two duchies were appalled and established a provisional government in the port city of Kiel in March. The provisional government, nominally led by Augustenburg, requested membership to the German Confederation, which the Confederate Diet agreed.

Seven-thousand Danish soldiers were dispatched into Schleswig in April but were met by the invading Prussian army, which had been sent by the Diet to protect the supposedly independent duchies. Despite a number of victories, the Prussians were forced to withdraw in June after Sweden landed a further 7,000 troops to assist Denmark, while the Great Powers of Europe such as Great Britain and Russia had threatened intervention to preserve the status quo. A truce signed at Malmö in July kept the peace for only seven months before hostilities resumed.

But Prussia eventually had no choice but to bow to pressure and sign the Berlin accord of 1850, abandoning the Schleswig and Holstein rebels and allowing Danish troops to march back in and preserve order. The London Protocol of 1852, signed by all the Great Powers, promised to protect the integrity of the Kingdom of Denmark (including Schleswig and Holstein) permanently. However, efforts to find a solution to the Schleswig-Holstein Question throughout the 1850s proved fruitless.

The Jutland Peninsula was the scene of two bitter conflicts between the Prussians and Danes

In 1862, Otto von Bismarck became prime minister of Prussia, with a plan to unify the German peoples into a single empire under the Prussian crown. He began the daunting task by once again raising the Schleswig-Holstein Question. The conundrum was further complicated in December 1863 following the succession of Christian IX of Oldenburg to the Danish throne. Within days, he had signed a new constitution which mandated a common succession and parliament for both Denmark and Schleswig. The two duchies rallied around Frederick VIII of Augustenburg as their new duke and the German Confederation saw the new constitution as violating the London Protocol.

Bismarck now saw his chance. He needed a foreign victory to gain public support in a divided Berlin and sought the two duchies for Prussia with Kiel as a much-needed naval base. So he took the curious move to ally with Prussia's ancient enemy, Austria, and together they persuaded the Confederation to support Frederick's claim and occupy Holstein in December 1863 until Christian promised to restore regional assemblies. Then Bismarck broke with federal policy and launched an Austro-Prussian invasion of Schleswig on 1 February 1864, beginning the Second Schleswig War.

The Danish army numbered 38,000 men in four divisions, while the Austro-Prussian army numbered some 61,400 men across 57 battalions and 158 guns. Within days,

"THE DANISH STRONGHOLD OF DYBBØL WAS CAPTURED AFTER A TWO-WEEK SIEGE IN WHICH THE PRUSSIANS FIRED 65,000 SHELLS"

the Danish army was forced into retreat, even having to abandon the Dannevirke, a series of earth fortifications that had guarded the Jutland Peninsula since the seventh century. Having taken Schleswig by March, and with the Great Powers reluctant to intervene, Bismarck pushed for the invasion of the whole Danish mainland.

The fighting was sporadic but intense. On 18 April, the Danish stronghold of Dybbøl was captured after a two-week siege in which the Prussians fired 65,000 shells. A hastily organised conference in London between May and June failed to end the war, with the Prussians no longer interested in an independent Schleswig-Holstein. Bismarck's march through Denmark continued, with the Danes putting up one last but hopeless stand at Als on 29 June. On 14 July, Prussian General von Falckenstein arrived at the tip of the Jutland Peninsula and the entire Danish mainland was in Austro-Prussian hands.

The Treaty of Vienna, signed on 30 October 1864, formally seceded Schleswig and Holstein to Prussia and Austria jointly. But the two rivals were once again back at each other's throats over what to do with the duchies. Austria refused Bismarck's plot to make them nominally independent under Augustenburg, while historians argue they only supported him to postpone whatever plans Bismarck had for them. The Gastein Convention of 1865, which gave Austria administrative control of Holstein and Prussia control of Schleswig, cooled tensions but failed to stop a conflict.

Image Wiki / PD / Art

1866
AUSTRO-PRUSSIAN WAR

The main opponent to Bismarck's plan for unification was defeated in just seven weeks

Bismarck had raised German national consciousness with the Second Schleswig War, now it was time to put Prussia at the heart of it. But since the fall of the Holy Roman Empire in 1805, it was Austria and her Habsburg kings who had been leaders of the German Confederation and Bismarck needed them out of the way. His Austro-Prussian War was a carefully planned stage in the unification of Germany.

Bismarck's pretext for war was the Schleswig-Holstein debate that had been quarrelled over between the two powers for over a year. In January 1866, Prussia protested Austria's idea of joint elections across both duchies and argued it defied previous agreements. A diplomatic fallout ensued and by March both countries had mobilised their armies on the joint border.

Bismarck now went about ensuring that none of the Great Powers, especially Russia, would intervene should war break out and he found none were interested in protecting Austria. Then, in April, he forged an alliance with the Italians, who wanted Austria to hand over the region of Venetia so they could complete their own unification. This would mean Austria fighting on two fronts and diverting attention and resources away from Prussia. With these assurances in place, Bismarck forced Austria into war by invading Holstein on 9 June, with Austria declaring war on Prussia on 14 June.

Most of the German states rallied behind their traditional Austrian leader, including Saxony, Bavaria, Baden, Hanover, Hesse and Nassau. Meanwhile, the northern states of Oldenburg, Mecklenburg and Brunswick supported Prussia. With all its allies, Austria mustered around 520,000 troops, while Prussia mobilised 437,000.

Despite being outnumbered, Prussia's modernised and disciplined army had the advantage. During the early 1860s Prussia's military had been completely overhauled by the reforms of Bismarck, Count Albrecht von Roon and General Helmuth von Moltke. Conscription now meant constant training for three years, as opposed to Austria's conscripts who had to be trained from scratch. Prussia had also invested in state-of-the-art Dreyse needle rifles, which were breech-loading and enabled troops to reload while laying prone or crouching down. The Prussians also benefited from a boom in the latest artillery. Austria's army, meanwhile, still used muzzle-loading rifles, which forced soldiers to load standing up, and it still relied on the cavalry and bayonet charge as its primary method of attack in the field.

The Battle of Königgrätz on 3 July 1866 saw the Austrians routed by their Prussian foes

General von Moltke had planned meticulously for this very war. Instead of bothering with the smaller states, he concentrated most of the military's efforts on Austria itself. Prussia's impressive railway system meant he could mobilise and move forces far quicker than the Austrians, and this led to a rapid invasion of Saxony and Bohemia by late June. The smaller states played little role in the conflict: Hanover delivered a victory over Prussia at the Battle of Langensalza on 27 June, only to surrender two days later after being surrounded by Prussian reinforcements.

Prussian military superiority was demonstrated at the decisive Battle of Königgrätz on 3 July. The two Prussian armies, numbering around 285,000 men, had joined under the leadership of King Wilhelm of Prussia himself and von Moltke, who had studied the Bohemian landscape carefully. They faced a force of 240,000 Austrians under General Ludwig von Benedek, who had reluctantly taken up the post. Depending on bayonet charges and facing the modern military might of the Prussians, the Austrians suffered 45,000 casualties (over half of whom were killed) and were forced to retreat to Olmütz. The Prussians, meanwhile, lost fewer than 10,000.

Königgrätz effectively knocked Austria out of the war – all that was left was to clear up the smaller states. The Bavarians were defeated on 10 July and the combined armies of Württemberg, Baden, Hesse and Nassau fell on 24 July. King Wilhelm and many of his generals, including von Moltke, wanted to proceed into Austria and take Vienna but it was Bismarck, wanting a quick victory and fearing other powers intervening, who counselled moderation. An armistice was agreed on 22 July and a temporary peace at Nikolsburg was signed four days later, ending the Austro-Prussian War after just seven weeks.

Prussian soldiers in the 1866 conflict were well trained and armed with modern Dreyse rifles

"INSTEAD OF BOTHERING WITH THE SMALLER STATES, VON MOLTKE CONCENTRATED MOSTLY ON AUSTRIA ITSELF"

The Treaty of Prague, signed on 23 August, transformed the map of Germany. The German Confederation was dissolved, with all duchies and states north of the Main River made part of the new Prussian-led North German Confederation. Hanover, Hesse, Nassau and Frankfurt were annexed into Prussia, connecting the east and west regions of the country for the first time. Austria was permanently excluded from any German affairs, replaced instead by Prussia. Bismarck's success led the German middle classes to flock to him and Prussia to achieve their dreams of German unification. Bismarck's hopes of a Prussian-led German Empire were almost realised – only the three southern kingdoms held out.

Images: Alamy, Getty

1870 FRANCO-PRUSSIAN WAR

Defeating their powerful neighbour to the west was the crowning glory for the Confederation and signalled the birth of the German Empire

With the northern states secure, Bismarck once again needed to invoke German nationalism to bring Baden, Württemberg and Bavaria into the fold and complete German unification. Just like in 1866, he harnessed the passions aroused by war to achieve his aim – and for this he turned to France.

It was not difficult to pick a fight with Emperor Napoleon III: he had been brooding for years after not being given Luxemburg for mediating the Treaty of Prague. But the direct provocation for war came in 1868 when Bismarck put forward Prince Leopold of Hohenzollern, a cousin of King Wilhelm of Prussia, to become the king of Spain.

Napoleon feared the spread of Prussian influence, and especially the encirclement of France, and forced Leopold to refuse. Twice Napoleon forced Leopold to reject the offer, the last on 11 July 1870. The growing friction between Prussia and France was what Bismarck had been formulating.

On 14 July, Bismarck published the Ems Telegram, supposedly an account of a meeting between the French ambassador and King Wilhelm. In reality, the king had politely refused to promise not to nominate Leopold for the Spanish throne, but Bismarck's doctored version intentionally made it seem like both men had been unreasonable to each other, and that Wilhelm had insulted the ambassador. The plot worked perfectly: on 19 July 1870 France declared war on Prussia and the southern states, who saw France as the aggressor, flocked to support Bismarck.

Once again, the industrial power of the Prussian army was rolled into action. Effective administration and an efficient railway system meant 380,000 men under General von Moltke were dispatched to the forward zone in just 18 days. The French army, meanwhile, was more evenly matched in numbers compared to Austria but its poor administration stymied its effectiveness. Mobilisation was delayed and a vastly inferior railway system meant the French front line was poorly resourced. Units were armed with new mitrailleuse guns (a precursor to the machine gun) but a lack of training rendered them mostly ineffective. In addition,

Prussia's 12th Cavalry Brigade charges French lines at the Battle of Mars-la-Tour, August 1870

French troops pictured with an artillery piece during the Franco-Prussian War

artillery was not restocked after the French Assembly refused to grant the funds.

The two armies met at the Battle of Wissembourg on 4 August. Despite superior numbers and effective fire from modern Chassepot rifles, the French were forced to retreat by superior Prussian artillery and discipline. Just two days later, both the left and right wings of the French army were driven back by an onslaught of von Moltke's army. The left wing, under Marshal Francois Bazaine, was then forced to meet the First and Second Armies of the North German Confederation at the Battle of Gravelotte on 18 August. The largest battle of the war saw 188,332 Prussians with 732 cannons fighting all day against 112,800 French with 520 cannons. The following day, Bazaine led his troops to the town of Metz, where they were besieged by 150,000 Prussians for more than two months.

The French right wing, under Marshal Patrice MacMahon and Emperor Napoleon III himself, attempted to relieve Metz and unite with Bazaine. But before they reached Metz, they

"THE FRENCH WERE FORCED TO RETREAT BY SUPERIOR PRUSSIAN ARTILLERY AND DISCIPLINE"

were encircled by a pincer movement from the Prussian Third Army under von Moltke at Sedan. On 1 September, Napoleon began the decisive Battle of Sedan by attempting to break the encirclement. Time after time the outgunned and outnumbered French were repelled by Prussian artillery fire, losing around 17,000 men to the Prussians' 2,300 by the end of the day. The following day, 2 September, Napoleon surrendered and he and his entire army of 104,000 men were taken prisoner in a formidable victory for Prussia.

But the war was not over yet. Upon hearing of Napoleon's surrender, Paris overthrew the imperial regime and announced the Third French Republic. Von Moltke was forced to besiege the capital for over four months, firing between 300 to 400 shells on it every day, while renegade generals attempted to remove the occupying Prussian army throughout the winter. On 26 January, with the Republican Army facing defeat after defeat, France negotiated a truce with Bismarck at the Palace of Versailles, which was concluded on 28 January with the surrender of Paris. The Franco-Prussian War was officially ended with the Treaty of Frankfurt on 10 May 1871, which saw France surrender Alsace and Lorraine to Germany and agree to pay five billion francs as indemnity.

By this point Bismarck had already achieved his crowning glory. France's prolonged refusal to surrender had stirred enough anti-French passion to encourage the last independent German states to join Prussia and finally unite Germany. On 18 January, in the Hall of Mirrors at Versailles, Wilhelm was declared emperor of the new German Empire and Bismarck its first chancellor. The Germany Bismarck's wars had formed would continue to be the dominant power in central Europe until the outbreak of World War I in 1914.

Images: Alamy

BOMBER COMMAND

THEIR FINEST HOUR

In June 1944, the Allied invasion fleet launched to begin the liberation of Occupied Europe did so in a cocoon of protective air power. Fighters swept ahead and above; maritime patrol aircraft shielded the flanks; and vast fleets of transport aircraft carried the paratroopers who would seize bridges and causeways behind enemy lines. An often overlooked contribution to Operation Overlord was the role of the heavy bombers, who attacked the Nazi shore defences and carried out several other critical missions that paved the way for Allied success

WORDS **STUART HADAWAY**

As WWII progressed, better technology and tactics improved Bomber Command's accuracy and effectiveness

Avro Lancasters of No. 83 Squadron at Scampton, Lincolnshire, prepare for a raid on Bremen, June 1942

Royal Air Force (RAF) Bomber Command had been formed in 1936, at a time when the vast majority of the RAF's aircraft were still biplanes. Bombers were the great fear of the inter-war period; popular fiction and the press had stoked public concerns about bombing. Bombing promised the ability to knock out an enemy quickly and efficiently, while avoiding the even greater spectre of another land war like that on the Western Front. The need for bombers, and to defend against them, was one of the cornerstones of the case used to justify the continued existence of the independent RAF.

Despite the inter-war fears, when Bomber Command went to war in September 1939 it was not a success. German short-range bombers were able to inflict serious damage on cities such as Warsaw and Rotterdam, and later London, but Bomber Command faced the additional challenges of having to operate over very long distances from their bases in England. Daylight raids proved easily intercepted and prohibitively expensive, and a switch to night raids crippled accuracy.

The Command's aircraft were inadequate, their equipment and training lacking, and their numbers too few to have any real effect. However, for the first years of the war Bomber Command remained the only way that Britain could maintain even the illusion of continuing an effective fight against Germany. The sound of bombers droning nightly into the dusk to attack the German homeland was crucial for propaganda and public morale.

In August 1941, the Butt Report exposed just how poor Bomber Command's accuracy was, and in the following February policy officially changed from the myth of making precision attacks on named targets, to one of area bombing. The aim was now de-housing German workers and causing as much destruction as possible to divert German resources. A week after that new directive was issued, Air Marshal Sir Arthur Harris was appointed as the new commander-in-chief (c-in-c). Harris was, and remains, a complex and controversial figure. He applied himself to his task with a single-minded dedication, protesting vehemently any diversion of resources or purpose from his given task. However, this was his job as c-in-c, and while he frequently stated his belief in how bombing could drastically shorten the war, he would follow other orders with similar single-mindedness.

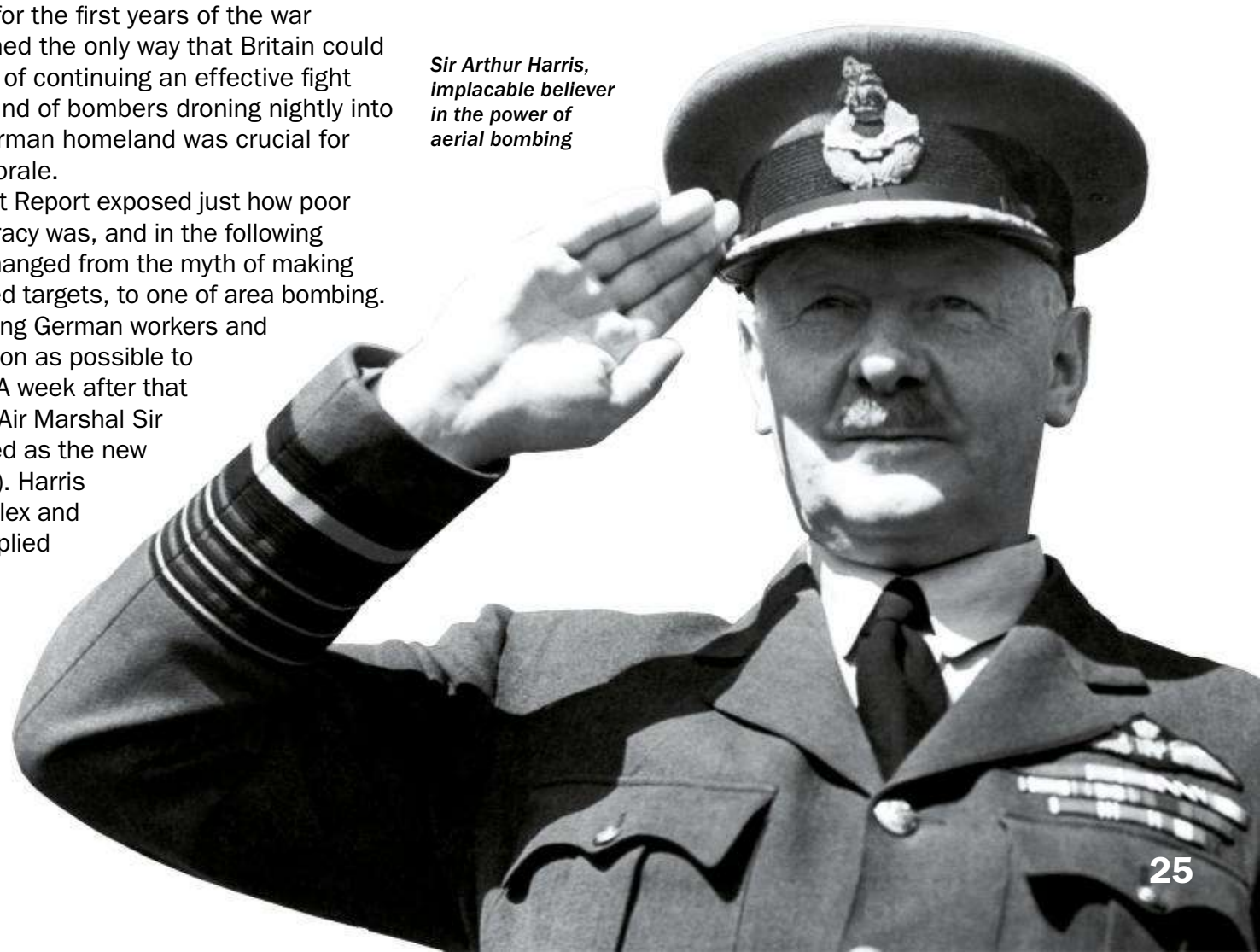
Over the winter of 1943-44, Harris launched a campaign to destroy the German capital, Berlin. It was not a success, despite significant increases in the striking power and effectiveness of Bomber Command, with bigger and better bombers, and improved aiming techniques and technology. While fighting this battle, Harris was also being pulled into the plans for Operation Overlord, the Allied landings in Normandy.

The Transportation Plan

Plans for Overlord were already developing through the late summer of 1943, and it was proposed to include both Bomber Command and also the American heavy bombers of the United States Army Air Force's (USAAF) 8th Air Force, their strategic bomber force in the UK. An Allied Expeditionary Air Force Bombing Committee was established in January 1944 to oversee the air contributions, including the heavy bombers.

One member of the committee, scientific advisor Professor Solly Zuckerman, soon proposed an idea based on his observations of the invasion of Sicily the previous

Sir Arthur Harris, implacable believer in the power of aerial bombing



year. Known as the 'Zuckerman' or 'Transportation Plan', it proposed creating a 'railway desert' throughout northern France by destroying marshalling yards and other rail infrastructure. Obviously, this campaign would have to be fairly dispersed before the invasion to avoid revealing the proposed location, but in the two weeks following D-Day the 'desert' would be extended to 240km around the landings. This would cut off the beachheads from rapid resupply or reinforcement, forcing tanks and vehicles to move by road where they were slower, vulnerable to air attack, would suffer more wear and tear, and of course burn much more precious petrol, of which Germany was already suffering severe shortages.

There were concerns that the heavy bombers lacked the required accuracy for the task, and that heavy raids on yards in urban environments would lead to unacceptably high French civilian losses. This was a legitimate concern, but a lot had changed in the last two years. "The popular conception of Bomber Command's attacks on German cities 1942-44 is that they were simply indiscriminate area attacks – yet almost from the day that Harris had taken command in February 1942, new technological aids had enabled the bombers to find their targets at night with increasing accuracy," Dr Robert Owen, official historian of the No. 617 Squadron Association and author of *Breaking the German Dams: A Minute-by-Minute Account of Operation Chastise 16-17th May 1943,* told **History of War**.

"There was the creation of the Pathfinder Force, with highly competent navigators who, assisted by new aids such as Gee and later Gee-H, based on radio beams, were now able to locate their targets with increased accuracy. Oboe, another radio bombing aid, employing two intersecting beams transmitted from England; H2S, a ground-mapping radar, could also be used to pinpoint the bomber's position

Caen in Normandy was heavily bombed on 7/8 July – but the Allied advance into the town was hindered by the large amounts of rubble

A Handley Page Halifax returns from a raid

A bomber crew discuss an upcoming raid on the ports Boulogne and Calais in northern France, September 1944

and locate a target even from above cloud. The Pathfinders would drop flares to improve visibility and then release coloured target indicators to visually mark the precise aiming point. In 1943 a new bomb sight, the Mk XIV, had been introduced, enabling much greater accuracy when aiming at the target marker. This technology allowed markers to be placed accurately in both clear and cloudy conditions, even when the target could not be seen."

A series of test raids were flown, starting with a raid on the yards at Trappes on 6/7 March 1944. Six de Havilland Mosquitos from the Pathfinders marked the target for 266 Handley Page Halifaxes from Nos. 4 and 6 (Canadian) Groups, who successfully attacked the target, and eight more similar operations were staged throughout the rest of the month. The results were remarkable; accuracy was high and the collateral damage far lower than expected. Viewing the results, US President Franklin D Roosevelt declared: "However regrettable the attendant loss of civilian lives is, I am not prepared to impose from this distance any restriction on military action… that… might militate against the success of Overlord or cause additional loss of life to our Allied forces of invasion."

British Prime Minister Winston Churchill agreed, and the Transportation Plan became official policy.

In SHAEF hands

In mid-April, both RAF Bomber Command and the USAAF 8th Air Force were transferred to the direct command of Supreme Headquarters Allied Expeditionary Force (SHAEF), under the command of General Dwight D Eisenhower. Harris now received orders that he was to commit his force to the progressive destruction and dislocation of German military, economic and industrial systems, including the railway network. Although SHAEF now had first call on

Ground crew load bombs onto an Avro Lancaster, May 1944

Aunay-sur-Odon in Normandy was obliterated after Allied troops reported strong German motorised transport and troop concentrations in the village, 14/15 June 1944

"HOWEVER REGRETTABLE THE ATTENDANT LOSS OF CIVILIAN LIVES IS, I AM NOT PREPARED TO IMPOSE FROM THIS DISTANCE ANY RESTRICTION ON MILITARY ACTION"

- PRESIDENT FRANKLIN D ROOSEVELT

"THE BATTLE OF BERLIN OVER THE PREVIOUS WINTER HAD BEEN AN ORDEAL FOR BOMBER COMMAND'S CREWS"

Bomber Command also operated by day over Normandy

Avro Lancaster R5838 'S for Sugar' refuels after its 100th operation, in May 1944. The oldest surviving Lancaster, it is now preserved at the RAF Museum at Hendon

The V-1 flying bomb assembly and launch facility at Siracourt, France, after being attacked by RAF and USAAF heavy bombers, June 1944

A daylight bombing raid on the railway yards at Tourcoing, France, in the build up to Operation Overlord, June 1944

Bomber Command's resources to attack targets directly connected to the invasion, these orders also allowed Harris considerable leeway to continue his established campaign against Germany.

It might be expected that Harris, ever reluctant to be diverted from what he saw as his main task, would use this leeway to the full, but in fact he rapidly established a good working relationship with Eisenhower and threw his Command into supporting Overlord. Over the coming weeks, until 5 June 1944, approximately 83 percent of the Command's operations were made in direct support of SHAEF, and nearly half of those raids were dedicated against transportation targets. Special flights to drop weapons and munitions to French Resistance groups were also stepped up.

The Battle of Berlin over the previous winter had been an ordeal for Bomber Command's crews, with long flights over heavily defended territory in poor weather leading to heavy casualties. The shorter raids to northern France and Belgium were in some ways a respite, but this did not mean they were risk-free. On the night of 3/4 May, 346 Avro Lancasters, led by 16 Pathfinder Mosquitos, raided a large German military base at Mailly Le Camp, 130km east of Paris. Although heavy damage was inflicted, destroying tanks, vehicles and facilities and killing hundreds of troops, the night was clear with a bright Moon, and while orbiting waiting for the Pathfinders to do their work, the Main Force formations were attacked by German night fighters. Some 42 Lancasters were shot down, over 11 percent of the force, making this proportionally one of Bomber Command's worst raids of the war. Further raids against other German camps and troop concentrations were more successful.

Wings over D-Day

At 12.30pm on 5 June 1944, orders were issued by HQ Bomber Command to activate Operation Order 188, which had been issued several days earlier. At bomber stations across England, ground crews swung into action to prepare 1,136 heavy bombers, while the aircrews were gathered for briefings. Ten raids would be mounted that night, against coastal gun batteries in Normandy. Timings had to be precise; although the crews could not be told why, bombs had to be dropped before naval forces came into range, and the air space had to be cleared to allow mass formations of transport aircraft free access to drop zones behind the beaches.

The first blow fell at 11.31pm, as 92 Lancasters dropped their bombs on the batteries at Crisbecq Fontenay, on Utah Beach, and the last at 5.02am on 6 June as 106 Lancasters struck the Ouistreham batteries, dropping the last of over 5,000 tons of bombs. As they turned for home, vast formations of medium bombers and USAAF heavy bombers replaced them. Meanwhile, other Bomber Command aircraft were contributing to the deception plans aimed at sewing confusion among the German high command. Over 30 aircraft dropped dummy parachutists far from the real drop zones, while over the Channel one of the most demanding Bomber Command operations of the war was underway.

"Since 1943 Bomber Command had been using 'window' – strips of metal foil to interfere with German defence radar," says Dr Owen. "It was realised that strips, cut to reflect the signals from coast-watching radar, would produce the effect of a mass of vessels approaching the coast. The problem was that an invasion fleet would advance at a rate of about 7 knots, much slower than an aircraft. The solution was found by the aircraft flying towards the coast in a series of overlapping orbits, the leading edge of each orbit moving forward at the right speed. However, realism required absolute precision in terms of the timing, size and rate of despatch, and the position and speed of the aircraft. Any variation in any one component might cause the phantom fleet to behave in a manner that would give the game away."

Two squadrons were selected: Operation Taxable would use 16 Avro Lancasters of No. 617 Squadron between Newhaven and Cap d'Antifer, while Operation Glimmer used

THE FIRST 'SECOND FRONT'

Bomber Command's attacks on German industry had a major impact on the Nazis' combat effectiveness

Years before the Second Front was opened in Normandy, Bomber Command had been forging its own Second Front in the skies of Germany, and in the process had laid invaluable groundwork for when Allied troops finally returned to the Continent.

With Bomber Command attacking industry over a broad front, German Minister of Munitions Albert Speer recalled: "Every square metre of the territory we controlled was a kind of front line. Defences against air attacks required the production of thousands of anti-aircraft guns, the stockpiling of tremendous quantities of ammunition all over the country, and holding in readiness hundreds of thousands of soldiers who, in addition, had to stay in position, often totally inactive, for months at a time."

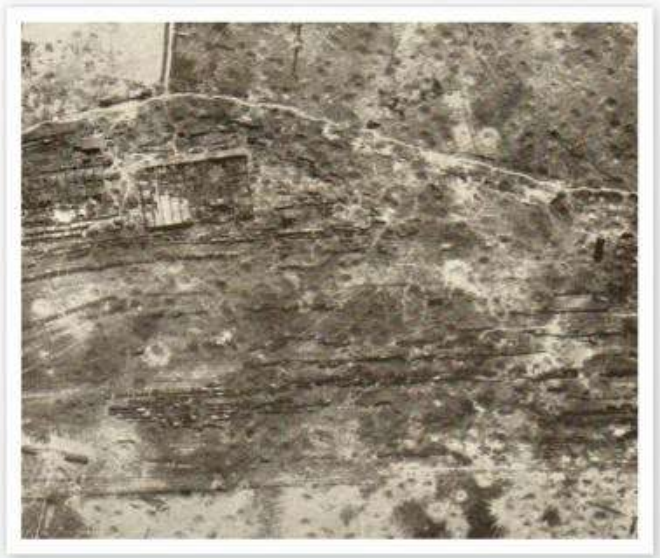
Protecting against bombers was an immense drain on increasingly stretched German resources. By the end of 1943 there were 55,000 anti-aircraft guns spread across Germany; one-third of all artillery production was dedicated to such guns, and 75 percent of all 88mm Flak guns were remaining in Germany. Most of these guns, and the 88mm in particular, could also be used for anti-tank or other standard artillery uses. It does not take much imagination to see what difference these weapons would have made if they had been free to be deployed on the Eastern Front, or indeed at the coastal defences in France. Equally, over half of all German radar and signals equipment was being retained for home use instead of being used to ease communications across the vast distances of the Eastern Front. And over two million personnel were employed to man the air defences, or in civil defence and repair roles. On top of this, vast resources were needed to repair bomb damage which would otherwise have been available to build defences elsewhere.

While it is true that German war production continued to rise as more efficient practices were introduced, by the end of 1944 Allied bombing meant that production trailed behind projections by 35 percent for tanks, 31 percent for aircraft and 42 percent for motor transport. Meanwhile, severe disruption to the German railway network (with only 50 percent of the rolling stock available at the end of 1944 as had been at the start) and oil production meant that bringing together components from factories that had been dispersed earlier in the war to avoid bombing became ever more difficult, as did moving munitions and equipment to where they were needed.

Although the campaign against German industry did not provide the knock-out blow that so many had hoped for or predicted, it undoubtedly had a major impact on German combat effectiveness. While the forces facing the troops coming ashore at Normandy were still formidable, they suffered from shortages of equipment, personnel and fuel due to the attrition and destruction caused by the bombing offensive.

In preparation for D-Day, stocks of bombs on Bomber Command airfields were more than doubled to 2,000 tons of munitions ready for use

Above and above-right: *Before and after images of the railway yards at Aulnoye, bombed on 27/28 April 1944*



Below: *Smoke rises from direct hits as an RAF Mitchell B25 bombs the steel works in Caen, Normandy*

Aircrew often painted slogans on bombs before embarking on a raid

eight Short Stirlings from No. 218 Squadron over the Straits of Dover, supported by a flotilla of small naval craft towing barrage balloons fitted with radar reflectors.

"The Squadrons practised intensively for a month," says Dr Owen. "Such was the concentration required that each aircraft carried 14 personnel, including two pilots and two navigators – the remainder being used to ensure the despatch of 'Window' at the correct size, rate and time. To reduce crew fatigue, and hence the chance of error, each operation was conducted by two waves of aircraft, introducing a further complexity as one aircraft took over from another. Shortly before dawn they reached their stop line where they broadcast the sounds of shipping dropping anchor and other appropriate noises through loudspeakers, before retreating behind the cover of a smokescreen."

The Germans sent E-Boats to investigate the Glimmer 'convoy', and coastal artillery fired at their final position. They undoubtedly added to the confusion experienced by the German high command, and probably helped reinforce their preconception that any activity in Normandy was a diversion, and that the real landings would be made in the Pas de Calais.

Tallboys and Gardening

Over the nights following the landings, Bomber Command threw itself into the Transportation Plan. On the night of 6/7 June, over 1,000 aircraft attacked nine communications hubs that were supposed to have been bombed by day bombers, but the operations had been washed out by cloud cover. Although continuing low cloud led to one of the targets being called off that night, the other eight were successfully bombed. The following night 337 aircraft struck four railway junctions, while a further 122 attacked a major road junction at Foret De Cerisy and the adjacent fuel dumps hidden in the woods around it. On the night of 8/9 June, nearly 500 aircraft hit railway targets, while No. 617 Squadron flew a special operation against the Saumur railway tunnel. The following night, the target list was extended to include a series of airfields to prevent reinforcements or supplies being flown into the area as the other transportation routes were closed off.

"THE TALLBOY WAS AN 'EARTHQUAKE' BOMB, WHICH WOULD PENETRATE DEEP INTO THE EARTH BEFORE EXPLODING AND SENDING SEISMIC SHOCKWAVES THROUGH THE GROUND"

The Saumur raid would be a milestone, seeing the first use of the 12,000lb (5,443kg) 'Tallboy' bomb, designed by Barnes Wallis, creator of the 'bouncing bomb' used to breach the Ruhr Dams the year before. The Tallboy was an 'earthquake' bomb, which would penetrate deep into the earth before exploding and sending seismic shockwaves through the ground. These could be used to attack previously hard-to-hit targets such as bridges (destroying the foundations for supports) and buried tunnels.

Dr Owen explains No.617 Squadron's role in the attack: "The 17th SS Panzer Grenadier Division comprising six full infantry battalions, some 3,500 men, with motorised assault guns, was based just north of Poitiers. If they could be moved north quickly enough their input might prove decisive as the Allied beachhead enlarged and pushed deeper inland.

"As the line from Poitiers approached Saumur, it passed through a cutting before entering a tunnel on the south bank of the Loire, which exited onto a bridge crossing the river. It was this vital, and vulnerable, point which was selected as the target which would see the first use of this new weapon.

"The attack was mounted at short notice on the evening of 8 June. By the light of flares dropped by Lancasters of No. 83 Squadron, Wing Commander Leonard Cheshire flying a Mosquito of No. 617 Squadron placed his target indicators in the cutting running up to the tunnel. A total of 19 Tallboys

New recruits to the RAF undergo machine gun training, April 1940

***Top:** A Mitchell bomber from No. 98 Squadron based at Dunsfold, Surrey, returns from an operation in France*

***Above:** Avro Lancasters of No. 207 Squadron. The type was the most widely used Allied heavy bomber of the conflict*

were dropped. Most fell around the markers, two falling in the cutting causing a landslide and severing the double railway track with craters 70ft [21m] in diameter and 25ft [8m] deep. Even more remarkable was the Tallboy that hit the hillside just back from the tunnel entrance. It bored through the hill and detonated causing a crater 38ft [12m] deep and piercing the roof of the tunnel. The line through Saumur was no longer an accessible route for reinforcements."

A few nights later the Tallboys were in action again, attacking the massive concrete pens that protected the German E-Boat flotilla at Le Havre. These small, fast, heavily armed boats were a direct threat to the invasion fleet, and already Bomber Command had made several raids against E-Boat bases in France and Belgium since the landing, while also targeting them with 'Gardening' operations. 'Gardening' was the codeword for mine-laying operations; the enemy coast was split into scores of 'plots', into which low-flying bombers 'planted' sea mines. The Le Havre raid destroyed over 30 E-Boats and damaged as many more.

Securing the beachhead

Over the following weeks Bomber Command continued to hamper German efforts to respond to the landings in Normandy. One German response would become an increasing drain on Bomber Command's resources, after the first V-1 flying bomb was launched against the UK on 13 June 1944. Starting on the night of 16/17 June, Bomber Command would see a steady commitment of aircraft devoted to bombing V-1 (and later V-2) related sites.

In July a new challenge came as the British, up until now acting as an 'anvil' to draw in the main German counter-attacks while the Americans broke out of the beachhead to the west, also sought to break out. On the 7/8 July, heavy bombers struck the German defences around the outskirts of Caen. The timings, with the bombers striking hours ahead of the land attack, gave the Germans time to recover and made the effectiveness of the attack dubious, while the resulting rubble slowed the British advance through Caen considerably.

However, Bomber Command would be used seven more times through July and August for such tasks, blasting German front lines before attacks. The others were generally more successful, with German units and morale shattered by the massive attacks from above. Field Marshal von Kluge, German commander in France from 2 July 1944, recorded before his death the following month: "The psychological effect on the fighting forces, especially the infantry, of such a mass of bombs, raining down on them with all the force of elemental nature, is a factor which must be given serious consideration… They are more or less annihilated by it, and above all their equipment is ruined."

On 14 September 1944, RAF Bomber Command was released from its commitment to SHAEF. Its contribution to the campaign in northern Europe, which by then had seen the liberation of France and Belgium and the beginning of the advance into Holland, had been considerable. Despite many expectations to the contrary, Harris had proven a committed and supportive subordinate to Eisenhower, taking part in daily planning meetings with the SHAEF senior staff and using his resources to the best advantage to support the campaign.

His Command had also come out of the period stronger and more effective; the high levels of precision needed had honed the Command's skills, while new weapons such as Tallboy were valuable additions to its armoury. The relatively lower loss rates had also benefited the Command, which grew from around 1,100 aircraft in April 1944 to nearly 1,400 in October, while the levels of experience among the average crew had grown. Bomber Command had played a vital part in the battle of Normandy and would now return, even stronger than before, to the final (and perhaps most controversial) period of its campaign against Germany.

All images: Alamy, Getty

AN HISTORIAN'S GUIDE TO COLD WAR BERLIN

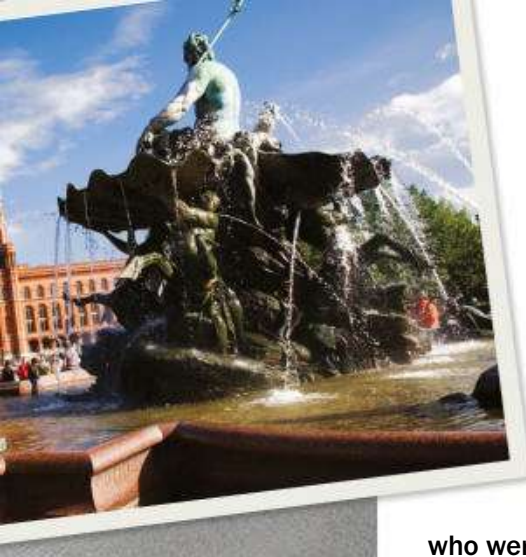
The capital no longer sits at the frontline of a potentially apocalyptic standoff – but the sights, stories and scars from this tragic period in German history still remain

WORDS **MATT ROBINSON**

To pause now next to the monumental Brandenburg Gate is to find yourself standing on what was once the fault-line running through the heart of Europe. The point where two competing ideologies of the 20th century, capitalism and communism, clashed as they balanced on the ruins of a third, defeated and discredited, dogma – that of National Socialism.

The death strip of the Berlin Wall that once surrounded the Brandenburg Gate is no more. Gone are the border guards of the Deutsche Demokratische Republik (DDR) tasked with shooting traitors escaping to the West – replaced with selfie-shooting tourists and street performers posing for photos.

The past, it has been said, is a foreign country. In the case of Germany, countries would be more precise. The Bundesrepublik Deutschland of West Germany (BRD) lives on in its present form, whereas the former DDR of East Germany has receded like so much collapsing scenery. Traces of the era that saw these two Germanies centre stage in a clash of civilisations, however, are still visible – on the streets, in the museums and in the minds of the people of the now unified Berlin – like tide marks on the social, political and very real landscape of the German capital.



THINGS TO SEE

01 TEUFELSBERG

The Battle of Berlin in 1945 raged for a fortnight and reduced the city to rubble as Soviet forces shelled the already mutilated capital of Nazi Germany and were forced to fight street-by-street. The task of dealing with the aftermath of the battle was mainly left to groups of women, Trümmerfrauen (rubble women), who were press-ganged into relocating most of the debris.

As West Berlin grew as a landlocked exclave deep behind the Iron Curtain, waste disposal continued in the Grunewald forest in the southwest, producing the tallest peak in the city – appropriately named Teufelsberg (Devil's Mountain). The remains of a United States National Security Agency listening station built on the rubble in the 1950s are still visible today, discernible from any vantage point in the city.

02 RATHAUS SCHÖNEBERG

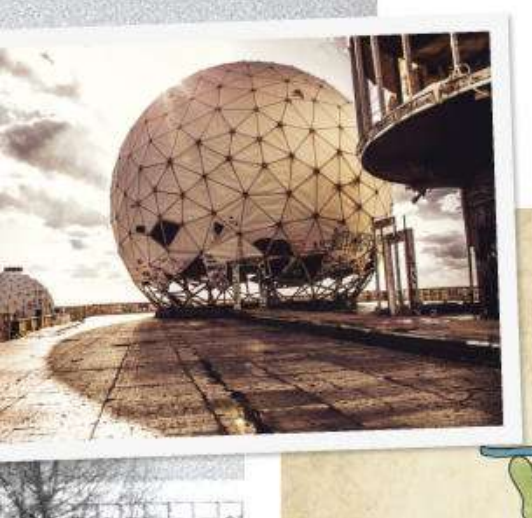
Visiting in 1963, US president John Fitzgerald Kennedy sought to rally the West Berliners and show solidarity with their cause – he addressed a crowd of around 450,000 people on a square in front of the West Berlin city hall.

Much has been made of Kennedy mistakenly referring to himself as a jam doughnut, using the phrase "Ich bin ein Berliner" ("I am a Berliner"). Including the 'ein' article would not be grammatically correct for a Berliner, but in this figurative case the Bostonian was correct as a non-Berliner drawing attention to his fellowship with the millions of real Berliners. Grammatical gymnastics it may be, but it's fortunate he wasn't in Frankfurt or Hamburg at the time. The square was renamed John F Kennedy Platz three days after the president's assassination later the same year.

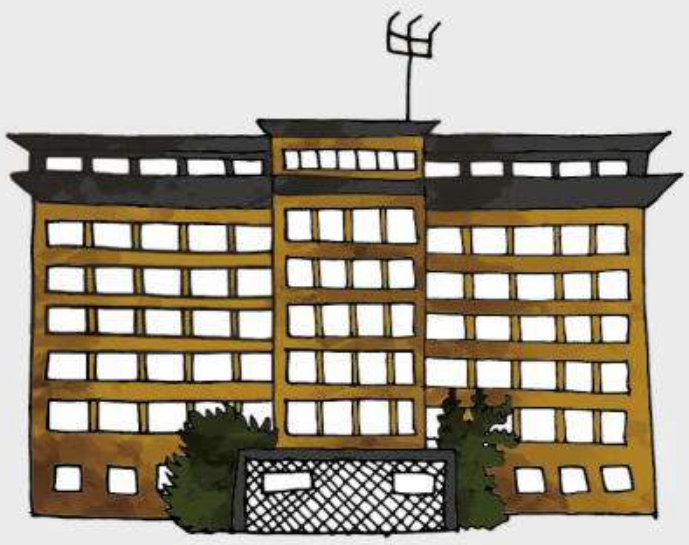
03 KARL-MARX-ALLEE

Dubbed by Italian architect Aldo Rossi as the last great European street, Karl-Marx-Allee was constructed in the 1950s as the dust from World War II was still settling and much of Berlin resembled a battered moonscape.

Originally known as Stalinallee, it was the artery to the heart of the East German capital, stretching two kilometres from the Friedrichshain district to the TV tower at Alexanderplatz. Visiting dignitaries could admire the 'wedding cake' style architecture while cruising along this vast avenue, its stores replete with goods and restaurants serving cuisine from the DDR's socialist sister states. The most renowned of the latter, Cafe Moscow (with its replica Sputnik satellite) now stands empty. The Kino International cinema remains, as does the famous Cafe Sibylle, which is home to what survived of the statue of Joseph Stalin that once stood triumphant on the street – a piece of his moustache and an ear.



TAKE THE FAMILY



04 STASI MUSEUM

East German dissident singer-songwriter Wolf Biermann once playfully dismissed the need for diary-keeping in the DDR – because the secret police were doing a better job than he could.

By the time he was expelled from the country in 1976 his 'diary' amounted to thousands of pages. He was just one individual among millions who fell victim to the much feared Ministry of State Security (Stasi), the so-called 'Shield and Sword' of the ruling Socialist Unity Party, tasked with asserting the Marxist-Leninist ideal.

To fall under the nightmarish gaze of the Stasi was to risk a social disfigurement worse than any physical wound, in a country that was near impossible to leave, with a regime that expected absolute loyalty from its human property.

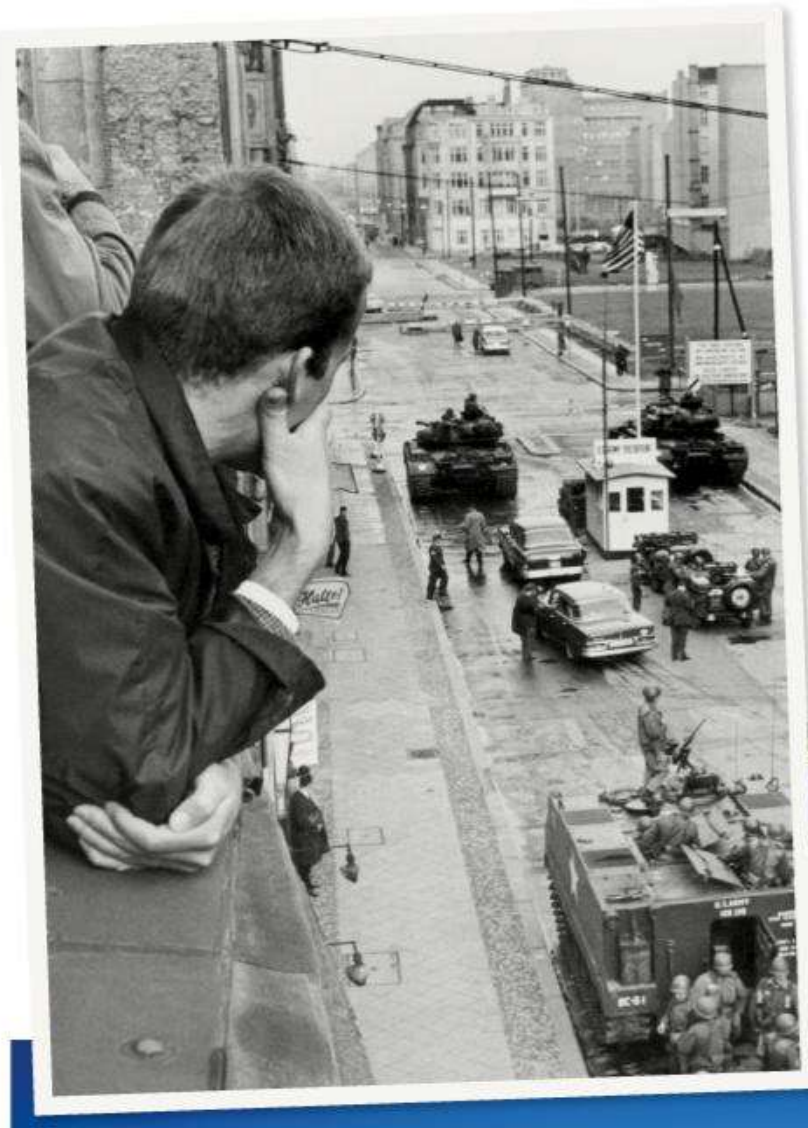
Eventually growing to become, proportionally, the largest secret police organisation of its kind ever to exist, the Stasi targeted, among many others, punks, rockers, poets and even hitchhikers as being politically subversive, and sought to fully extricate them from society.

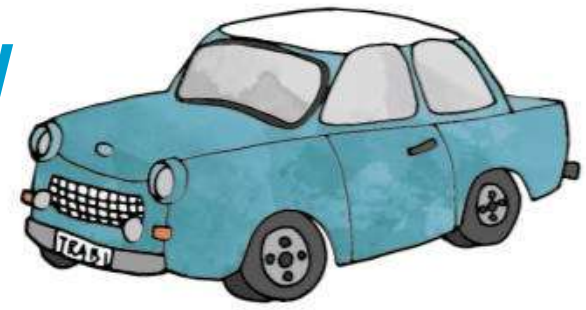
In January 1990, the Stasi headquarters in Berlin was stormed by protesters, with a museum quickly established to document the torment inflicted on the people forced to live under the heel of totalitarianism, which was implemented with a socialist face.

Smell jars, protocols for the psychological demolition of enemies of the state, surveillance equipment and the preserved office of former Stasi chief Erich Mielke are just some of the charms of this disturbing exhibit.

Gadgets like this miniature buttonhole camera are on display at the Stasi Museum, where the tactics of the secret police are exposed for visitors to see

A Cold War-era telephone on display at the Stasi Museum, which brings to the fore the surveillance techniques used during the period





05 TRABI SAFARI

Trabi Safari gives you the chance to join a sputtering conga line of East Germany's memorable little two-stroke clown cars for a narrated tour through the streets of Berlin.

Revered as the 'car of the common man' it was not uncommon to hear of people waiting up to 15 years to receive a Trabant in the DDR. Tours average around two hours and the cars can fit up to four people, possibly five if you squeeze in the back.

The sphere of the TV Tower was intended to remind people of the Soviet Sputnik satellites

06 TV TOWER

Rising up as the rare exclamation mark in an otherwise tame skyline, the Fernsehturm (Television Tower) was officially constructed by the East German government to broadcast colour television across the region. Completed in 1969, it remains the tallest structure in Germany and a towering masterpiece of socialist architecture. According to local legend, the tower originally stood at 365 metres high so that East German children could remember the height corresponding to the number of days in the year.

The tower boasts one of the fastest lifts in Europe, at a speed of 21.6km/h; it reaches the observation deck, which offers beautiful views of the city, in just 40 seconds. Above is a revolving restaurant – advance booking also includes fast-track entry to the tower.

07 DDR MUSEUM

From the reconstructed East German kitchen and living room (bugged by the secret police) to the real Trabant equipped with a virtual reality driving simulator, Berlin's 'most interactive museum' offers visitors a hands-on experience of what everyday life was like in East Germany.

The sights, sounds and smells of this now-defunct state are recreated with a plethora of touch-screens, dials and installations. You'll also find a reconstructed Stasi prison cell, an East German cinema and the pride of the exhibition: a ministerial Volvo, which was the kind of vehicle used by high-ranking bureaucrats as they would cruise to Berlin from the isolation of their colony north of the city.

The museum attempts to present an impartial view of the DDR, to let visitors decide on the true nature of the East. A good epilogue when leaving the museum is to pass the nearby statues of Karl Marx and Friedrich Engels, the founding fathers of communism, and ask yourself whether they are resting, content in the success of the socialist paradise, or sat on their suitcases ready to run away to the West.

EUROPE DIVIDED

No visit to Berlin would be complete without seeing, and touching, what remains of the Berlin Wall

Erected by the East German authorities on a Sunday morning in August 1961, the Berlin Wall completely surrounded the British, French and American occupation zones of West Berlin to stop the flow of East German citizens escaping to the West. Between 1949 and 1961 an estimated 2.7 million East Germans had fled the country, many through West Berlin.

Two sizeable pieces of the wall remain – that of the East Side Gallery and the section at the Berlin Wall Documentation Centre on Bernauer Strasse. The former is located directly next to the River Spree and maintained as a giant open-air gallery with 1.3km of graffiti murals. Don't miss the iconic image of the two Eastern leaders, Leonid Brezhnev and Erich Honecker, smooching (below-left). The latter section is part of the re-created 'death strip' at Germany's official Berlin Wall Memorial.

The significance of the Bernauer Strasse section is not to be overlooked: the first known victim of the Berlin Wall died on this street in August 1961 – a 58-year-old woman named Ida Siekmann who jumped from an apartment window in the East and was killed by the fall. Ten escape tunnels were dug in the area, including the legendary Tunnel 57, through which 57 people were smuggled in October 1964. The junction of Bernauer Strasse and Brunnenstrasse is also where border guard Conrad Schumann made his graceful 'leap to freedom'.

Soviet tanks in Berlin faced off against their US counterparts in October 1961

COLD WAR CONFRONTATION

A former border crossing now tourist trap: Checkpoint Charlie is where the Cold War almost turned scorching hot back in 1961

Freedom of movement for Allied personnel in Berlin had been guaranteed by the victorious powers at the end of WWII in Europe. So when in October 1961 the chief of the US mission was confronted while crossing into East Berlin via Checkpoint Charlie, things got heated. As US forces tested the intentions of the East over the following days, the Soviets decided to roll T55 tanks to within metres of Checkpoint Charlie. The Americans countered with M48 tanks and the two powers sat facing each other for 16 hours before disengaging.

It was a rare occasion for Soviet and US forces to directly face each other on the streets of a major city. As the third crossing on a highway from West Berlin into East Berlin, Checkpoint Charlie was the Cold War frontier of Western capitalism. It is now a magnet for tourists, with replica checkpoint box, and until recently street performers dressed as US soldiers.

EAT & DRINK

10 OSTPAKET

The planned economy of the East was defined as much by its shortages as the market economy of the West was by its excesses. In the East people would say: "Everything is available but not always, and not everywhere, and certainly not when you really need it."

A play on words for when citizens of the DDR would receive care packages from Western relatives, known as Westpaket, Ostpaket is an East German supermarket with one important difference – the shelves are full.

In the early 2000s films such as *Sonnenallee* and *Goodbye Lenin!* sparked a wave of so-called Ostalgie (nostalgia for the East), and interest in authentic East German products. Some products, like the East German sparkling wine Rotkäppchen and Bautzner mustard, have remained genuinely popular throughout the reunified country, and no imitation socialist worker's paradise would be complete without the complimentary Spreewald gherkins. Other products, such as Rondo coffee, remain an acquired taste, yet somehow are still popular with those who spent the majority of their lives with little choice.

08 OSSERIA

Even the most devoted card-carrying East German would've been at a loss to praise the originality of the country's culinary spectrum, with most dishes existing as rebranded imitations of their West German counterparts. This restaurant, however, lets you sample a selection of classic East German fare (such as Falscher Hase, meat loaf with red cabbage), just like Oma would have made it, surrounded by trinkets, memorabilia and era-specific decor.

09 CURRYWURST MUSEUM

French leader Charles de Gaulle once remarked on the impossibility of governing a nation with 246 types of cheese, but Germany now has over 1,200 types of sausage. Adapting to a shortage of ingredients, West Berliner Herta Heuwer invented the Currywurst in 1949 after combining curry powder, tomato paste and Worcestershire sauce, serving it with chopped sausage – a dish now irrevocably tied to Berlin.

WHERE TO STAY

11 OSTEL

There's an old joke about how the East Germans only had three colours for their buildings: grey, brown and grey-brown – a punch line not without justification. Beyond the socialist realist murals adorning the walls of the cities, most East German architecture was drab yet functional. Urban neglect was evident throughout the country in the shrapnel damage that remained visible in some cities even up to the late 1980s, the bombed out houses and empty tenement plots standing out like broken teeth.

To address the chronic housing shortage of the 1970s, the DDR began a number of building projects – in East Berlin, Dresden and Leipzig – with high-rise concrete tower blocks dubbed 'cupboards for the people' filling the skylines. These apartments were cheap, with an average household spending just a small portion of its income on rent. As denim jeans and Beatles records appeared in 1970s East Germany, so did the kitsch items citizens would purchase with their disposable income to spruce up these prefab homes.

Ostel is a design hotel that recreates these glory days of 'plastic socialism', complete with authentic gaudy furnishings and vintage wallpaper. Housed in real prefab concrete Plattenbau, the hotel provides cheap single and double rooms, with a complete holiday apartment also available to rent.

12 HOTEL ADLON

The Hotel Adlon is without doubt the most distinguished residence in Berlin – it often serves as the unofficial guest house for visiting heads of state – and is surrounded by the current embassies of the big four Cold War powers: the UK, France, Russia and the United States. Originally constructed in 1907, the building survived the Battle of Berlin only to burn down when intoxicated Red Army soldiers started a fire in the cellar while celebrating. The hotel finally re-opened in 1997. Known for the most expensive Currywurst in the city at €17(£13/$19), the Adlon is also where Michael Jackson dangled his baby son, Blanket, from a balcony in 2002.

13 HOTEL DE ROME

Film aficionados may recognise the exterior of this luxury hotel from its role in the cult German film *Run Lola Run*. Once home to the central bank of East Germany, it is now part of the Rocco Forte chain, with the hotel spa housed in the former jewellery vault. Elsewhere in the hotel, the director's offices now serve as suites.

14 SOHO HOUSE

This grand Bauhaus beauty was constructed as a department store in the 1920s, served as the headquarters of the East German Socialist Unity Party, and later became an institute for Marxist-Leninism. It is now one of Berlin's premier boutique hotels – thickly buttered with such delightful decadence that Marx would be turning in his grave.

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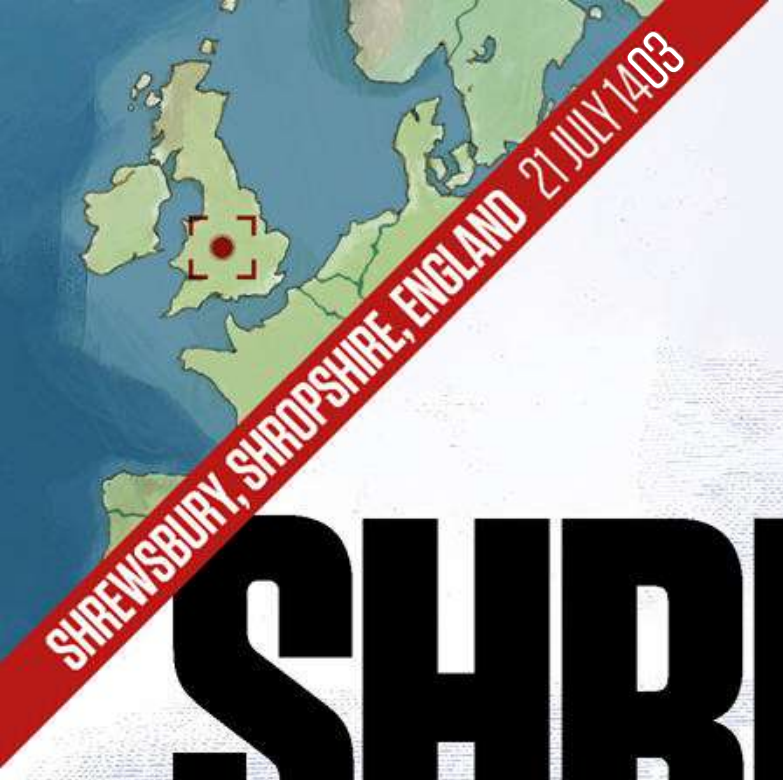


SHREWSBURY

In 1403, English archers faced each other in battle for the first time as rebels sought to topple Henry IV

WORDS NICK SOLDINGER

Harry 'Hotspur' Percy was killed at the Battle of Shrewsbury after being struck through the mouth with an arrow

On the night of 21 July 1403, a 16-year-old soldier was carried into the candlelit sanctuary of Shrewsbury Abbey with a bloodied rag pressed against his face. Shortly before, he'd been evacuated from a nearby battlefield when an arrow had hit him just below his right eye.

Ordinarily, he'd have been left to die. After all, this was medieval Britain, 400 years before the advent of anaesthetics, military surgeons or combat medics. The wounded teenager, however, was no ordinary soldier. He was Prince Hal, eldest son of King Henry IV and heir to the throne of England. It wasn't only his survival that now rested on the successful removal of the arrowhead still wedged in his skull, but the fate of a nation.

For years, the British Isles had been in turmoil. In fact, the origins of the Battle of Shrewsbury, in which Hal had just fought, could be traced back to the reign of the previous monarch, Richard II. His 22-year grip on power had been characterised by revolts, tyranny and treason and was eventually cut short in 1399 after his cousin Henry Bolingbroke staged a coup d'état. Richard was then locked away in Pontefract Castle, where he was starved to death, while Bolingbroke had himself crowned King Henry IV in his place.

Although Bolingbroke led the powerful House of Lancaster, he could never have pulled off this outrageous act of treason without some heavyweight help. Among those who'd backed him was the Percy family from Northumbria, whose eldest son Harry 'Hotspur' soon became Henry's henchman-in-chief.

While Romantic literature would have us believe that the medieval era was one of chivalry and honour, in reality it was a treacherous age. Turf wars, assassinations and dodgy deals were all commonplace, with the warlords who helped shape Britain in those brutal years often behaving more like Mafia bosses than so-called noblemen.

One important source of income for these racketeers in shining armour came from ransoming hostages captured in battle. Indeed, Hotspur's allegiance to Henry IV had less to do with loyalty than it did with the opportunity it presented for gaining greater wealth and power.

In 1402, after routing a Scottish uprising on behalf of Henry IV, he took over 80 noblemen prisoner. Among them was the powerful earl of Douglas, for whom he hoped to get a substantial ransom. The king, however, had other ideas. Believing the likes of Douglas posed less of a threat if they remained in royal custody, he demanded that Hotspur hand his hostages over to the crown.

OPPOSING FORCES

HENRY IV'S ARMY	VS	HOTSPUR'S ARMY
LEADERS King Henry IV of England Prince Hal, the Prince of Wales The Earl of Stafford		**LEADERS** Henry 'Harry Hotspur' Percy Thomas Percy, First Earl of Worcester Archibald Douglas, Fourth Earl of Douglas
BILLMEN (LIGHT INFANTRY) 6,250		**BILLMEN (LIGHT INFANTRY)**: 4,000
MEN AT ARMS (HEAVY INFANTRY) 3,250		**MEN AT ARMS (HEAVY INFANTRY)**: 2,000
ARCHERS 4,000		**ARCHERS** 4,000
MOUNTED KNIGHTS 250		**MOUNTED KNIGHTS** 150
TOTAL Approx. 14,000		**TOTAL** Approx. 10,150

"ROMANTIC LITERATURE WOULD HAVE US BELIEVE THAT THE MEDIEVAL ERA WAS ONE OF CHIVALRY AND HONOUR – IN REALITY IT WAS A TREACHEROUS AGE"

Hotspur and the earl of Douglas charged into the royal line. They hoped to win the battle by killing the king

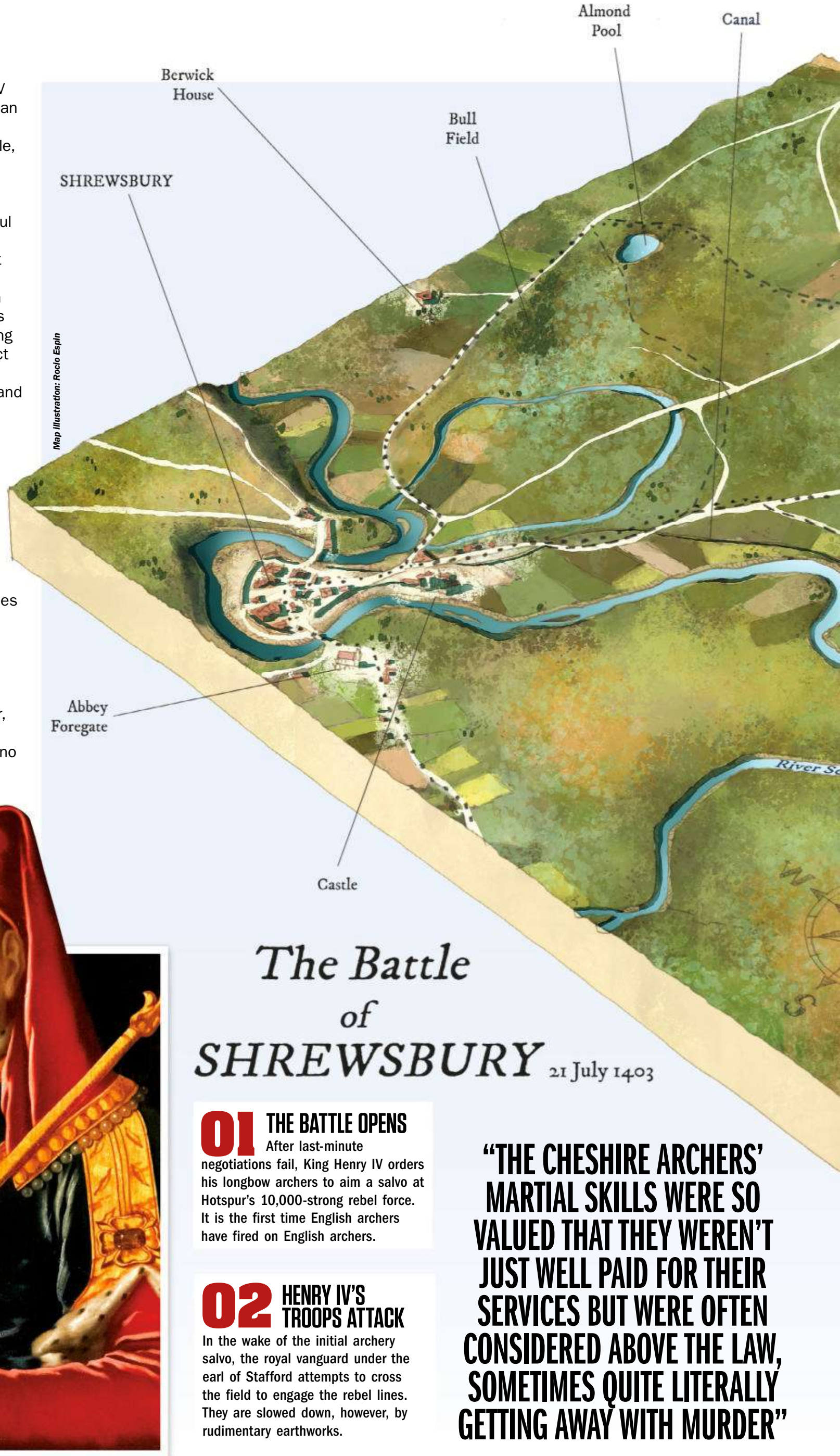
Things were already tense between Henry IV and the Percy family. The king still owed the clan £20,000 for their help in seizing power, a fee that he didn't have the funds to pay. Meanwhile, land in Cumbria that he'd promised them had instead been handed over to his relatives the Neville family. For Hotspur, the king's latest demand, which would deprive him of his rightful spoils of war, was a step too far. Not only did Hotspur refuse to hand over his hostages, but he also began planning a coup of his own.

In a move that sounds like a storyline from *Game of Thrones*, Hotspur now persuaded his hostage the earl of Douglas to join his uprising against his former boss. He then made a pact with Welsh rebel Owain Glyndwr, whom he'd also previously fought on behalf of the king, and began working on a coordinated campaign to bring Henry down.

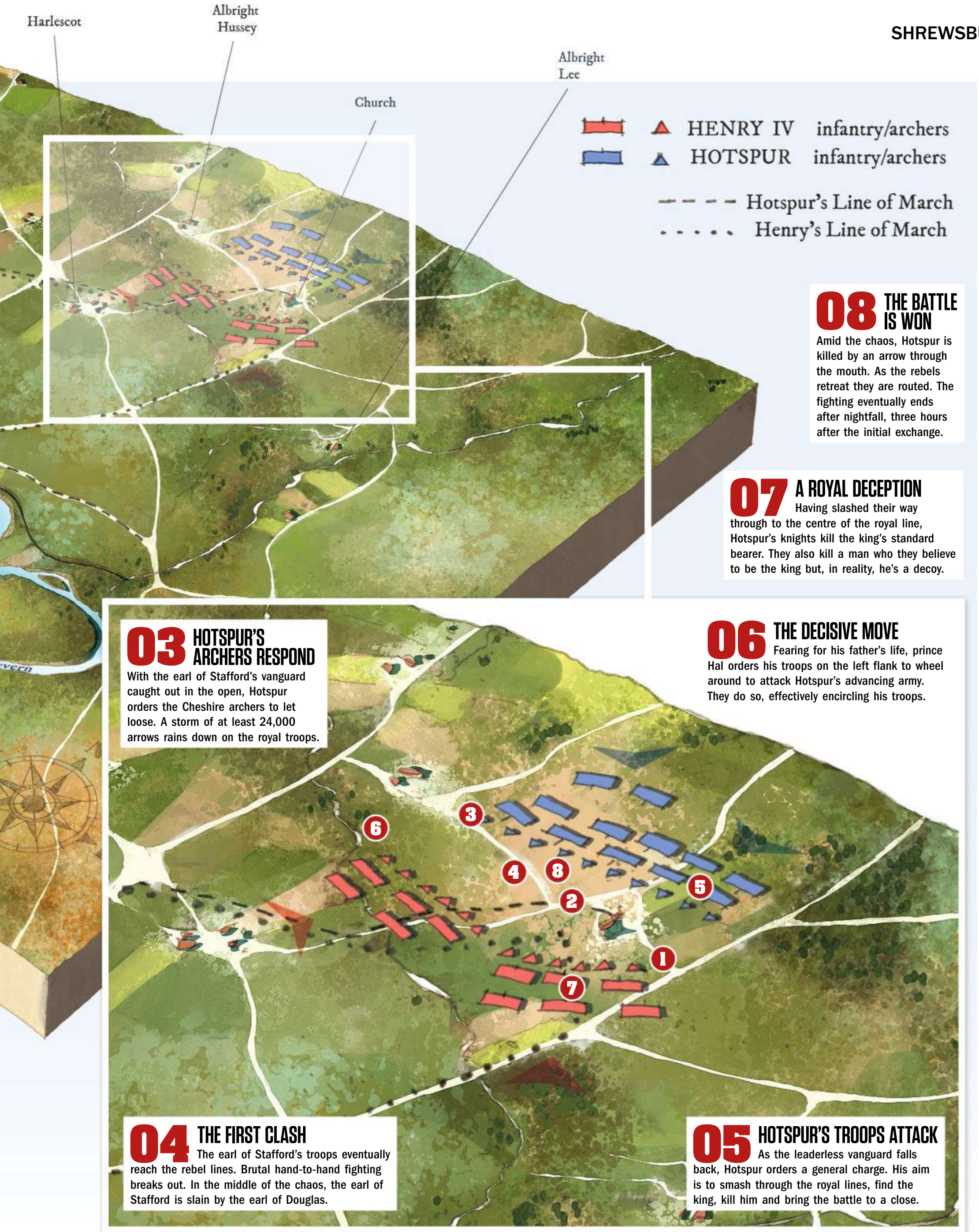
The rebellion begins

In the event, it was Glyndwr's forces that struck first. On 6 July 1403, his troops seized Carmarthen Castle, igniting a Welsh insurgency that stretched along the border. By this time, Hotspur was marching south from Northumberland gathering a rebel army around him as he went. He aimed to join forces with Glyndwr, before linking up with a third army being raised by his father the Earl of Northumberland in the north. This combined force, he figured, would be powerful enough to topple the king. Crossing the country from Northumbria, he arrived in the city of Chester, in Cheshire, on 9 July. Cheshire had been fiercely loyal to Richard II and Hotspur found no shortage of men willing to join his cause.

King Henry IV, who'd seized the English throne through treachery, soon found himself facing a revolt from former allies



"THE CHESHIRE ARCHERS' MARTIAL SKILLS WERE SO VALUED THAT THEY WEREN'T JUST WELL PAID FOR THEIR SERVICES BUT WERE OFTEN CONSIDERED ABOVE THE LAW, SOMETIMES QUITE LITERALLY GETTING AWAY WITH MURDER"



08 THE BATTLE IS WON

Amid the chaos, Hotspur is killed by an arrow through the mouth. As the rebels retreat they are routed. The fighting eventually ends after nightfall, three hours after the initial exchange.

07 A ROYAL DECEPTION

Having slashed their way through to the centre of the royal line, Hotspur's knights kill the king's standard bearer. They also kill a man who they believe to be the king but, in reality, he's a decoy.

06 THE DECISIVE MOVE

Fearing for his father's life, prince Hal orders his troops on the left flank to wheel around to attack Hotspur's advancing army. They do so, effectively encircling his troops.

03 HOTSPUR'S ARCHERS RESPOND

With the earl of Stafford's vanguard caught out in the open, Hotspur orders the Cheshire archers to let loose. A storm of at least 24,000 arrows rains down on the royal troops.

04 THE FIRST CLASH

The earl of Stafford's troops eventually reach the rebel lines. Brutal hand-to-hand fighting breaks out. In the middle of the chaos, the earl of Stafford is slain by the earl of Douglas.

05 HOTSPUR'S TROOPS ATTACK

As the leaderless vanguard falls back, Hotspur orders a general charge. His aim is to smash through the royal lines, find the king, kill him and bring the battle to a close.

Among the forces that flocked to his ranks were the Cheshire archers. These bowmen had played a famous role in the English victories over the French at the battles of Crécy in 1346 and Poitiers in 1356. They'd also seen active service in the ongoing conflict with Welsh rebels throughout the 14th and early 15th centuries. Battle-hardened and highly trained, their martial skills were so valued that they weren't just well paid for their services but were often considered above the law, sometimes quite literally getting away with murder. Feared as much as they were respected, Richard II had appointed them as his personal bodyguard in the dying days of his regime. And as Hotspur now discovered, many still wore Richard's symbol, the white hart, on their distinctive green and white tabards in defiance of the new king.

With this elite body of troops bolstering his ranks, and no doubt boosting his confidence, Hotspur now marched south, crossing over the border from Cheshire into Shropshire. He aimed to seize its most important town, Shrewsbury, which Prince Hal was defending with a small force.

By now, Henry IV was also at the head of an army. Having received news of Hotspur's treachery, he raced towards Shrewsbury from the east. He reached it on 20 July to link up with his son, just hours before the rebel army appeared on the horizon.

With the earl of Northumberland's army still in the north and Glyndwr's troops still fighting in Wales, Hotspur's army of 10,000 found itself facing a royal force closer to 14,000. With his men outnumbered, Hotspur set up camp in the village of Berwick, 5km north of Shrewsbury, to wait for reinforcements to arrive. Henry IV, however, was in no mood to hang around.

The following morning, on 21 July, the king marched his army out of Shrewsbury and headed east. Its mission was to outflank Hotspur's troops, sweep around behind them and sever their line of retreat back to Cheshire.

Hotspur soon got wind of his plan, however, so broke camp and also moved east in search of a better defensive position. He found it at a ridge overlooking farmland known locally as Hateley Field that was filled with pea vines. As part of their defensive preparations, the rebels twisted these vines together to form rudimentary barriers before taking up position on the higher ground and waiting for Henry IV's troops to arrive.

It was mid-afternoon before the two sides eventually encountered each other. Attempts to avoid a confrontation were made. A parlay was organised but talks soon failed, and two hours before dusk the king gave the signal for the battle to begin. On dropping his raised hand, his longbow archers sent a storm of arrows into the rebel ranks.

No sooner had they found their first targets than the king's vanguard on the right flank charged forward led by the earl of Stafford. The distance these men needed to cover was only a few hundred metres, but the waist-high tangle of pea vines that covered the field soon slowed them to a near standstill.

The Cheshire archers now raised their longbows and aimed them downhill in the direction of the struggling troops.

Death from above

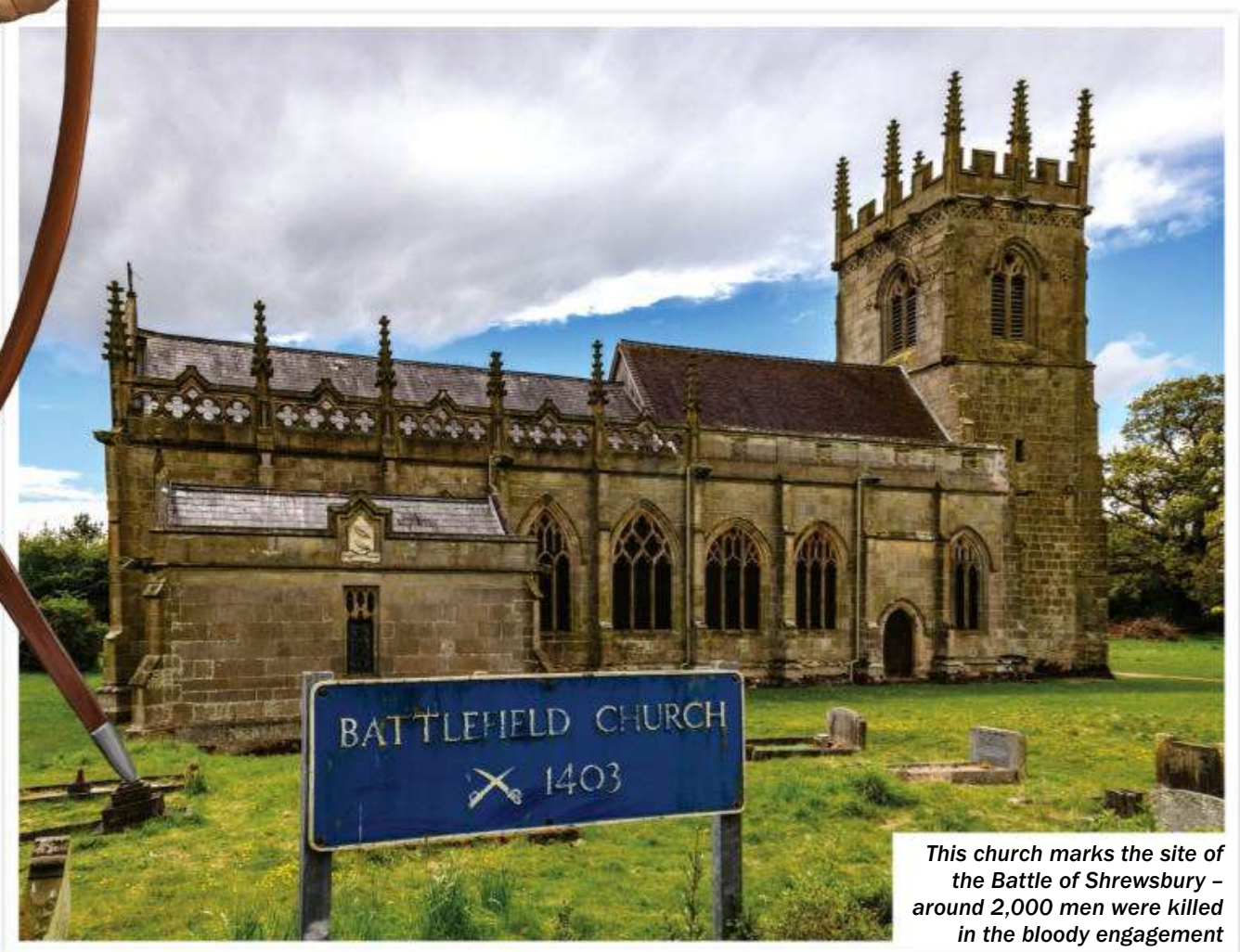
The Battle of Shrewsbury was the first time that two English armies would use the longbow to deadly effect against each other. Although other European countries were slow to appreciate the potential of this unique weapon, the English had long appreciated its deadly use. Laws were even passed to encourage archers to practise more regularly in peacetime.

A good longbow took great skill and effort to make, while mastering the technique to use it effectively took years. The longbow itself was carved and shaped from a single 2m-piece of yew that often stood taller than the man holding it. The arrows it used, which were up to 90cm long, were accurate up to 230m and lethal at 90m. Travelling at speeds of 320kph, they had the power to not only smash a man to the ground but also to pin him there too. And, over time, a variety of arrowheads were developed to eliminate different types of target. Bladed hunting arrows with backwards-facing barbs, for example, were used to take down horses. Bodkin arrows with long thin heads were favoured against foot soldiers wearing chain mail, while bodkins with shorter heads were developed to punch their way through the type of plate armour worn by knights.

The longbow's true effectiveness wasn't as a precision weapon, however. Instead, it was its ability to bludgeon the enemy with overwhelming force. In the early stages of a battle, longbow archers didn't aim directly into enemy troops – they would launch arrow storms into the sky that, much like an artillery barrage, would rain death down on the enemy lines in continuous waves.

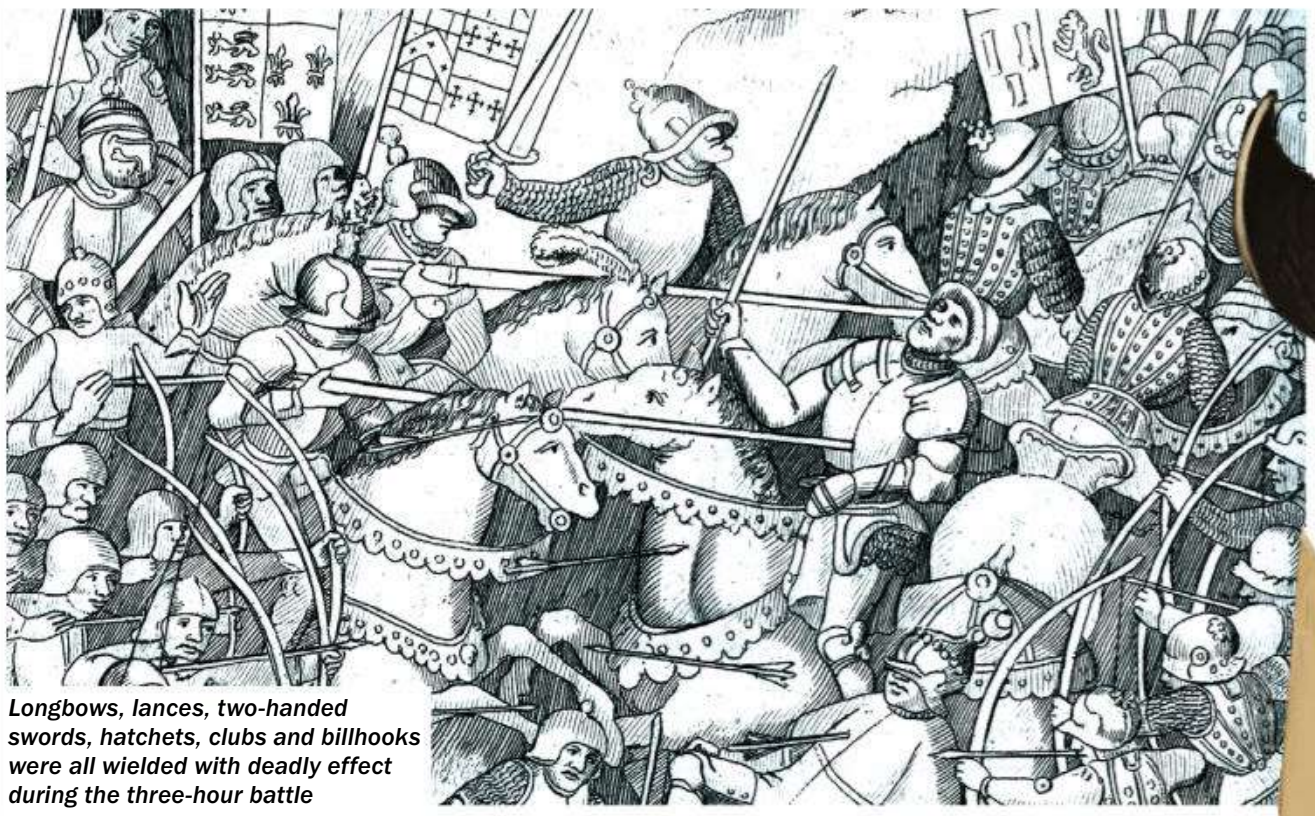
It's been claimed that an accomplished archer of the era could let off 12 or more arrows a minute. Given that it required around 45kg of force to pull back the bowstring each time, about half this number seems like a more realistic rate. Especially when you consider the limited number of arrows each archer could

Medieval longbowmen were most effective when shooting salvos en masse into the air to rain down on enemy troops



This church marks the site of the Battle of Shrewsbury – around 2,000 men were killed in the bloody engagement

Welsh rebel Owain Glyndwr joined forces with Hotspur to fight against King Henry IV



Longbows, lances, two-handed swords, hatchets, clubs and billhooks were all wielded with deadly effect during the three-hour battle

carry. But even at six arrows a minute a massed barrage could still deliver a knockout blow.

If Hotspur had 4,000 longbowmen with him at Shrewsbury, as has been estimated, then in the opening minute of their advance Stafford's men would have come under fire from at least 24,000 arrows. Indeed, one account of the time draws a shockingly vivid picture: "The archers drew so fast and thick," wrote the chronicler Jean de Waurin, "that it seemed like a dark cloud, for the sun, which at that time was clear, then lost its brightness, so dense were the arrows."

Despite this aerial onslaught, Stafford and his men somehow reached the rebel lines. Brutal hand-to-hand combat broke out as soldiers pummelled each other with two-handed swords, war hammers, hatchets, clubs and billhooks. Somewhere in the middle of this chaos the earl of Douglas found Stafford and, after a brief fight, hacked him to the ground. With their leader dead, what remained of the vanguard now fled and Hotspur, whose impetuousness in battle had earned him his nickname, ordered his men to charge after them.

Perhaps smelling victory, he now led a band of mounted knights towards the centre of the royal army from where Henry IV had been seen commanding the battle. His men slashed a corridor through the swirling turmoil amid screams and shouts as arrows continued to rain down from both sides. On reaching the centre, the earl of Douglas killed the king's standard bearer, Sir Walter Blount, while Hotspur and his knights surrounded a man they believed to be Henry IV. As he, too, was slain a victory shout went up in the rebel ranks. The dead man, however, was a decoy, as several men had been dressed in the king's livery before the battle to confuse the enemy.

"IT SEEMED LIKE A DARK CLOUD, FOR THE SUN, WHICH AT THAT TIME WAS CLEAR, THEN LOST ITS BRIGHTNESS, SO DENSE WERE THE ARROWS"

The king now rallied his troops, shouting that he was still alive and declaring Hotspur to be dead. And it was true. At some point in the fighting, Hotspur had raised his helmet's visor, perhaps to shout an order, and was struck through the mouth with an arrow and killed.

As word of his death spread, his troops tried to run only for many to be cut down as they fled the battlefield. The fighting finally petered out as night fell after three hours of mortal combat.

By the time the battlefield fell silent, between 1,600-2,000 men lay dead or dying, their mutilated corpses littered over a 3 mile (5km) area. Another chronicler later wrote: "Those who were present said they never saw or read in the records of Christian times of so furious a battle in so short a time or of larger casualties than happened here."

The surviving rebel leaders were all soon rounded up, including the wounded earl of Douglas, who'd lost a testicle in the fighting. Spared, he remained a prisoner of the crown until Henry IV's death in 1413. Thomas Percy, Hotspur's uncle, however, was not so lucky. After being executed, his severed head was displayed on a spike at London Bridge.

Hotspur's corpse, meanwhile, suffered an even more grisly fate. Initially mounted on a spear in Shrewsbury town centre, it was then quartered so its four parts could be sent to Chester, Bristol, Newcastle and London for public exhibition. His severed head, meanwhile, was put on show in York where it was shown to his father, the earl of Northumberland, whom Henry IV had summoned to the city.

By then, the Percy family no longer presented an immediate threat to his regime but still possessed enough clout to be of use in containing the Scots. So Henry, ever the pragmatist, pardoned Northumberland for his part in the uprising. For the same reason, he also spared the surviving rebel troops, including the Cheshire archers. After all, Glyndwr's uprising in Wales still had to be dealt with.

The fate of Prince Hal

Despite his young age, Prince Hal had been given command of troops on his father's left flank at the start of the battle. At the height of the fighting, as Hotspur's knights had ploughed into the royal lines, the young prince had ordered his men to wheel around the back of the rebel force, encircling them. In the fighting that followed Hal, like Hotspur, had also been hit in the face by an arrow when he'd opened his visor. That arrow, however, hadn't killed him and he'd continued to command his troops until the fighting was over. It was only when the day was won that he finally sought assistance for his wound. Although the wooden shaft of the arrow was soon pulled out, its iron head remained lodged deep inside his skull. If it remained there, the wound would turn gangrenous, killing the prince within days.

Initial attempts to treat the wound at Shrewsbury Abbey ranged from the primitive to the superstitious. Various potions and chants were tried but without success. Hal was transferred to Kenilworth Castle in Warwickshire nearly 100km to the east, where the renowned surgeon John Bradmore was waiting for him.

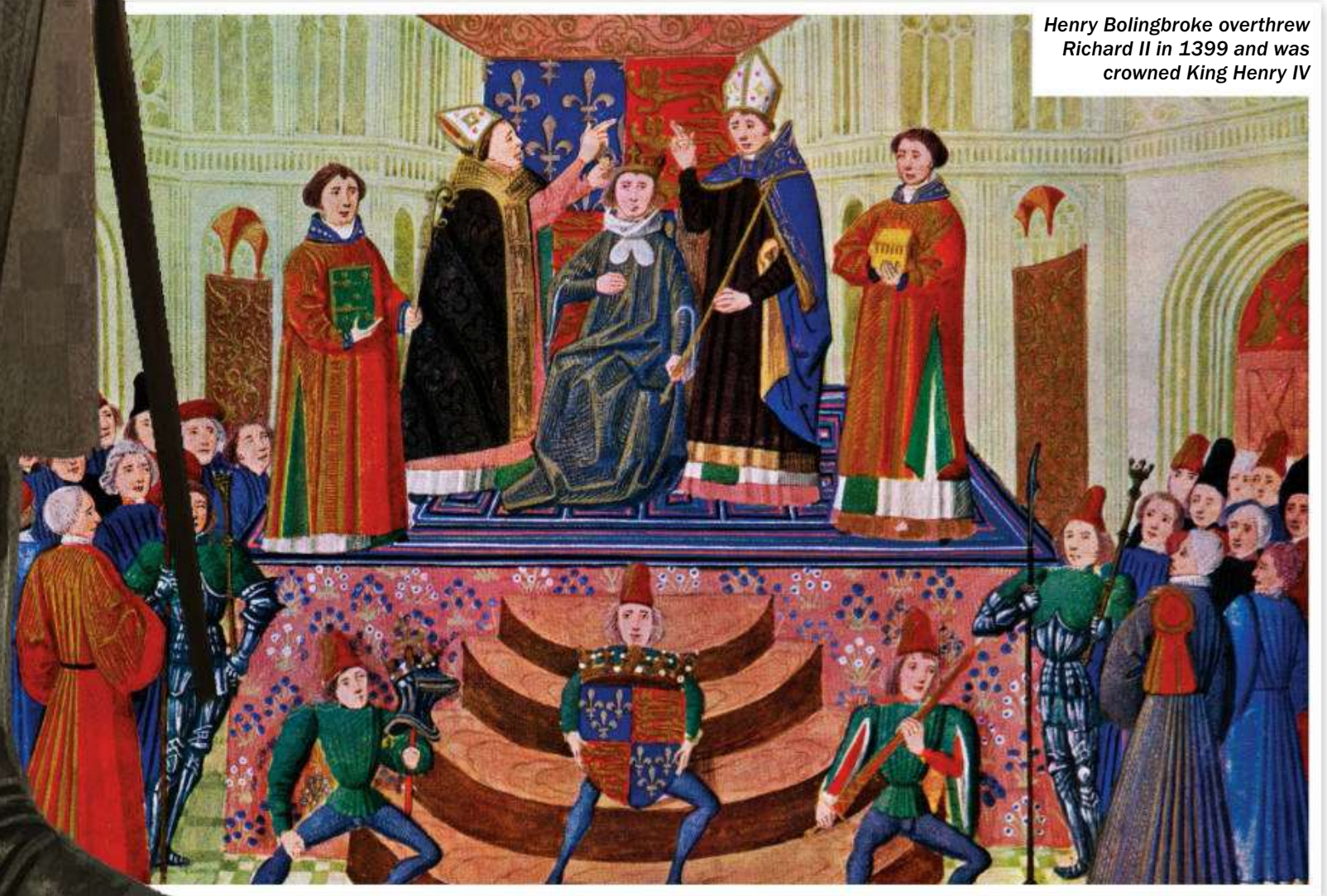
In his medical memoir *The Nightingale of Grace*, Bradmore recalled the wound in detail: "Henry, the son and heir of the king, had been struck by an arrow next to his nose. And the head of the arrow remained in the furthermost part of the skull, six inches deep." As horrific as this injury sounds, Hal had been lucky. A few inches higher and the arrow would have pierced his brain, any lower and it would have severed his spinal cord. He'd survived by the slimmest of margins.

The conventional method of arrow removal at that time was to push the arrowhead out of the body via the wound. For Bradmore, however, this wasn't an option. The arrow's point was resting right on the base of Hal's skull. The only way to remove it safely would be to pull it out.

Before Bradmore could do this, however, he had to first locate the arrowhead. With no X-ray, the only method available to him was to insert a series of exploratory probes into the wound. These were made from strips of elder wood wrapped in linen and dipped in honey. Bradmore jabbed his way ever deeper into the wound until he found what he was looking for. "I had to make larger and longer probes," he recalled afterwards, "until the wound was enlarged and deep enough for me to reach the arrowhead."

Having found the arrowhead, he now had to extract it. To do this, he'd designed a special tool that he'd had made at the castle's forge. Although he called the device 'tongs', it didn't have scissored forks that could clamp an object from the outside. Instead, it was designed with a tip that, once inserted into the arrowhead, could be widened by turning a threaded screw to grip it from the inside. Bradmore's memoir recalls how he did this: "I put these tongs in at the same angle the arrow had entered and placed the screw in the centre as the tongs entered the socket of the arrowhead. Then, by moving it to and fro, little by little I pulled it out."

Throughout, Hal was dosed up with alcohol and a herbal narcotic called henbane. Nevertheless, the pain must have been excruciating. One can only imagine how mentally scarred the procedure would have left him. The horrific facial disfigurement he carried for the rest of his life, meanwhile, would have been a daily reminder of the harsh lessons he'd learnt from his first experience of combat. Lessons that, as Henry V, he would put to good use against the French at Agincourt 12 years later when his longbow archers sealed him one of history's greatest-ever victories.



Henry Bolingbroke overthrew Richard II in 1399 and was crowned King Henry IV

Images: Alamy, Getty, Wiki / PD / Art

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Heroes of the Victoria Cross

PETER BADCOE

This major of the Australian Army Training Team Vietnam displayed conspicuous bravery on three separate occasions, leading members of the territorial forces of South Vietnam in Thua Thiên-Hué Province

WORDS **MURRAY DAHM**

Born Peter Badcock in South Australia in 1934 (he changed his name to Badcoe in 1961), Badcoe enlisted in the Australian Army in June 1950 when he was only 16 – he had long-held ambitions to join the army despite his father's opposition. Badcoe then joined Officer Cadet School in 1952 and graduated at the end of the year as a second lieutenant in the Royal Australian Artillery. He was promoted to captain in 1960 and, in June 1961, toured to the Federation of Malaysia (after the conclusion of the Malayan Emergency in July 1960 and which had involved troops from Australia since 1950). For a week in November 1962, Badcoe was seconded to observe counter-insurgency techniques in South Vietnam, specifically in Quáng Ngãi Province (located south of Da Nang). Even though he was only there for seven days, he saw combat with the Army of the Republic of Vietnam (ARVN).

Australia's involvement in the Vietnam War had begun earlier in 1962, when the Australian Army Training Team Vietnam (AATTV) first arrived in July. These special teams were designed to train and advise local troops – ARVN units, Montagnards, territorial forces and Mobile Strike (Mike) Forces. Although they were 'advisers', members of the AATTV saw some of the fiercest and most dangerous fighting. All four of the Victoria Crosses awarded to Australians during the Vietnam War were to AATTV members, the others being Kevin Wheatley (posthumous), Ray Simpson and Keith Payne. Australia's (sometimes controversial) involvement in Vietnam would last until 1973 and would see the introduction of conscription in 1964 for men to serve a two-year term in the Australian Army. In all, almost 60,000 Australians served in the war, mostly army but also navy and air force personnel. Of those, 3,000 were wounded and 521 were killed – including Major Peter Badcoe, who was awarded a posthumous Victoria Cross for his conspicuous bravery in 1967.

Captain Badcoe served in Malaya and while there spent a brief period in Vietnam to observe counter-insurgency techniques

Badcoe transferred to the Royal Australian Infantry Corps in 1965 and was promoted to major in August that year. Exactly a year later, in August 1966, he arrived in Vietnam as part of the AATTV. His first post was as a sub-sector adviser in the Nam Hóa District of Thua Thiên-Hué Province located in the centre of Vietnam; the city of Hué is its capital.

His responsibilities included working with sections of the South Vietnamese

Major Badcoe's short stature can be seen here, belying the brave 'tiger' he was in combat

"HIS PERSONAL LEADERSHIP, WORDS OF ENCOURAGEMENT, AND ACTIONS IN THE FACE OF HOSTILE ENEMY FIRE FORCED THE PLATOON TO SUCCESSFULLY ASSAULT THE ENEMY POSITION AND CAPTURE IT"

VC citation regarding action on 23 February 1967

Territorial Forces – the Regional Force (RF) and the Popular Force (PF), both forms of full-time militia and known in Aussie slang as 'Ruff-Puffs'. Both Australian and American forces operated similar schemes; advisers would accompany territorial patrols and often became involved in firefights. During Badcoe's first week on the job he saw combat and displayed the kind of leadership, ingenuity, audacity, optimism, fearlessness, determination and aggression for which he was (and was to become) renowned. With the men under his command pinned down by a Viet Cong bunker, and after several attempts to silence the bunker had proven unsuccessful, the militia commander suggested calling in air support. Badcoe replied that would not be necessary and took two jerrycans of petrol from a jeep, made his way, undetected, behind the bunker, poured the petrol onto it and then ignited it with a phosphorous grenade. By this action he took out the enemy bunker and saved the lives of many of his men. He also lived up to the motto of the AATTV: 'Perseverance.'

Badcoe did not look the part of the stereotypical brave soldier – he was short, stocky, losing his hair and wore glasses. His Methodist faith meant that he did not drink or smoke; he preferred reading military history in his leisure hours. At the same time, he was

"IN THE FACE OF CERTAIN DEATH AND HEAVY LOSSES HIS PERSONAL COURAGE AND LEADERSHIP TURNED CERTAIN DEFEAT INTO VICTORY"

VC citation regarding action on 7 March 1967

conscientious, enthusiastic and energetic on exercises, just as he was in combat.

In December 1966, he was appointed the operations adviser for the entire Thua Thiên-Hué Province, based in Hué. This role was usually interpreted as much more of a logistical desk job, but Badcoe was far more hands-on and accompanied patrols whenever he was able to. Three such actions in which he was involved were mentioned on his Victoria Cross citation – on 23 February, 7 March and 7 April 1967.

On 23 February, Badcoe was accompanying an RF territorial patrol in concert with an American-advised PF platoon on his flank in Phu Thu District. The flanking patrol came under fire and, over the radio, Badcoe learned that the adviser, Captain Clement, had been killed and his deputy, Sergeant Thomas, had been wounded in attempting to reach his captain. Under enemy fire and without a thought for his own safety, Badcoe ran 600 metres across rice paddies under enemy fire to reach the PF patrol. He learned that Clement was lying 160 metres ahead of the platoon, having gone to the aid of a wounded soldier. Thomas lay wounded and exposed ahead of the platoon's position.

Badcoe took command of the PF platoon and led a frontal assault on the enemy position; they were dug in on a ridge and of approximately company strength. He personally led the charge and took out an enemy machine gun position. The charge inflicted heavy casualties on the enemy. Once the victory and position were consolidated, although still under enemy fire, Badcoe returned to retrieve Clement's body. He then went back for Thomas and assisted him to safety.

Badcoe's fearlessness and aggression, as well as his behaviour, led some colleagues to worry that he considered himself invincible and that his actions were reckless rather than brave. His letters home, however, reveal that he was not reckless in the least, although he included brutal details of the wounds men

The Australian Army Training Team Vietnam was formed to train and advise local troops

under his command had suffered. At the same time, he showed extreme self-deprecation. He wrote home to his wife in January 1967: “Don’t worry about me my little darling. Petie is still the most highly qualified professional coward of them all and I still hold the record for ‘fastest man behind the paddy bund’.” His actions would prove he was anything but the man he wrote home about.

On 7 March, only two weeks after the action in Phu Thu District, Badcoe accompanied an RF section to the village of Quang Điến, 25km northwest of Hué. When they arrived, the village had been taken over by the Viet Cong and the district headquarters of the RF was under assault. Badcoe formed his force into platoons and led them through enemy fire to flank the Viet Cong position. He then led his men in an assault across open ground against the enemy, taking them by surprise and forcing them to retreat in utter disorder.

On 7 April, while covering for a fellow officer who was sick, Badcoe became aware via radio traffic that an operation around the hamlet of An Thuan, 12km north of Hué, was going badly. This operation involved two RF companies as well as a squadron of APCs and an elite company of the 1st ARVN Division, the Hac Bao (Black Panthers). Two companies of Viet Cong were well dug-in and had inflicted heavy losses on the ARVN. There were no advisers present with the ARVN and RF forces – that meant they could not call in artillery or air support. Jumping in a jeep with a deputy adviser, Badcoe sped to the scene of the firefight. They arrived just as another assault was imminent and Badcoe and his deputy climbed aboard an APC.

Major Badcoe firing an M16 rifle at Holsworthy Barracks, Sydney, 1966

Dismounting and joining the Hac Bao, they came under intense enemy fire that forced them to retreat. Badcoe rallied the ARVN forces and called in an artillery strike. Pushing forward and encouraging a final assault across open paddy fields, the distinctive Badcoe drew enemy fire. He refused to fall back again, however, and instead headed towards an enemy machine gun position. As he rose to throw his grenade to take out the position, he was hit by machine gun fire and killed instantly. His conduct did, however, inspire the Hac Bao who, after close air support and artillery had been called in by Badcoe’s wounded deputy, assaulted and took the enemy position.

Badcoe was gazetted for a posthumous Victoria Cross on 13 October 1967, where each of these three actions was referenced along with superlative praise of his conduct. His medal was presented to Badcoe’s widow, Denise, by the governor-general of Australia on 5 April 1968. In addition to the Victoria Cross, Badcoe was also awarded the US Silver Star with oak leaf, and the South Vietnamese Cross of Gallantry with Gold Star.

He was buried, as per his wishes, in the Terendak Camp Military Cemetery in Malacca, Malaysia. When 22 other Australians buried there were repatriated in 2015, the Badcoe family insisted that he remained there in accordance with his wishes – he, his wife and three daughters had all lived together at Terendak when he was stationed in Malaysia. He has continued to be honoured in South Australia and more widely with an electoral district renamed in his honour in 2016 and a Returned Services League residential aged care facility named in his honour in 2020.

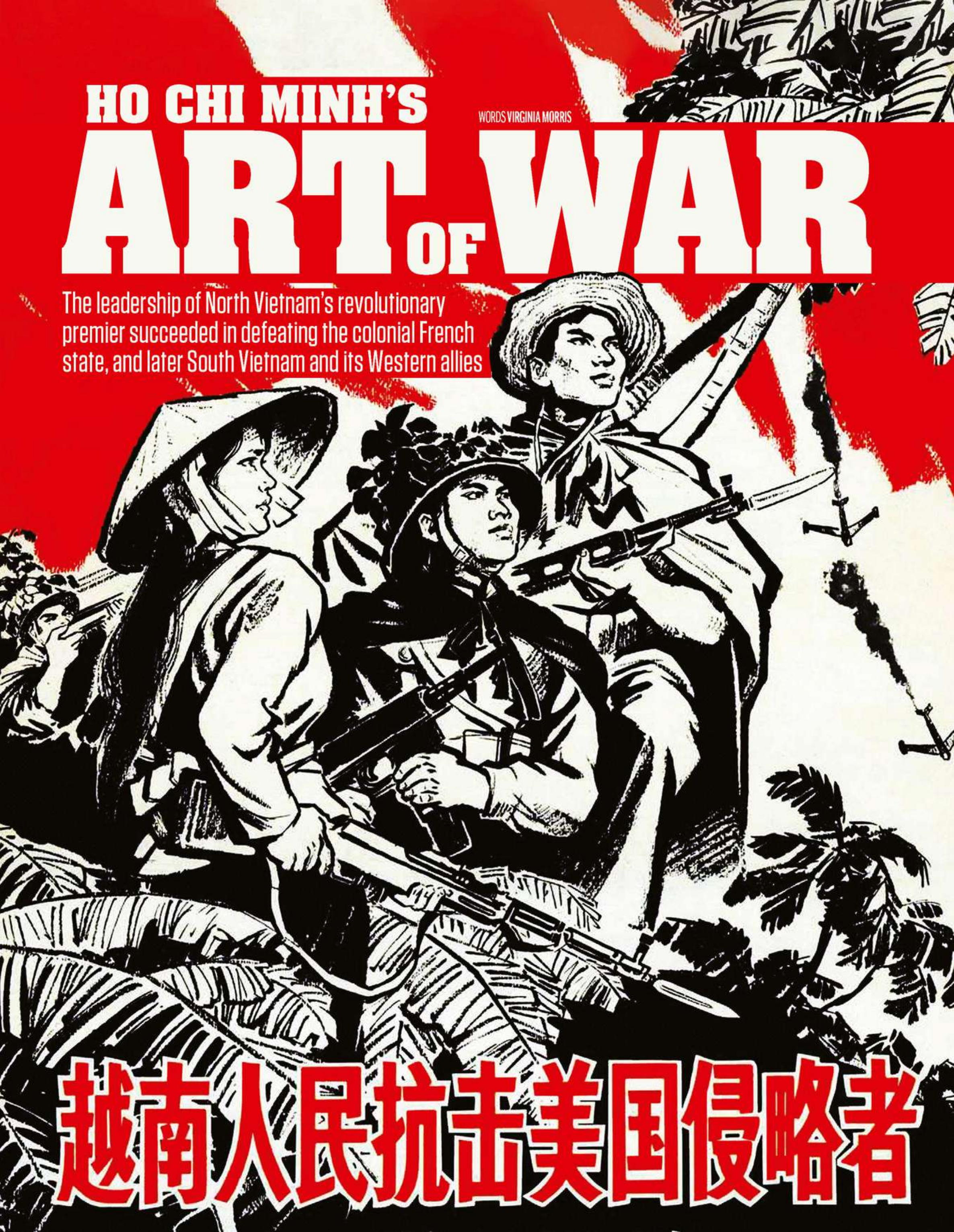
Images: Alamy, Getty, Wiki / PD / Gov

The last members of the Australian Army Training Team Vietnam to arrive home, 21 December 1972

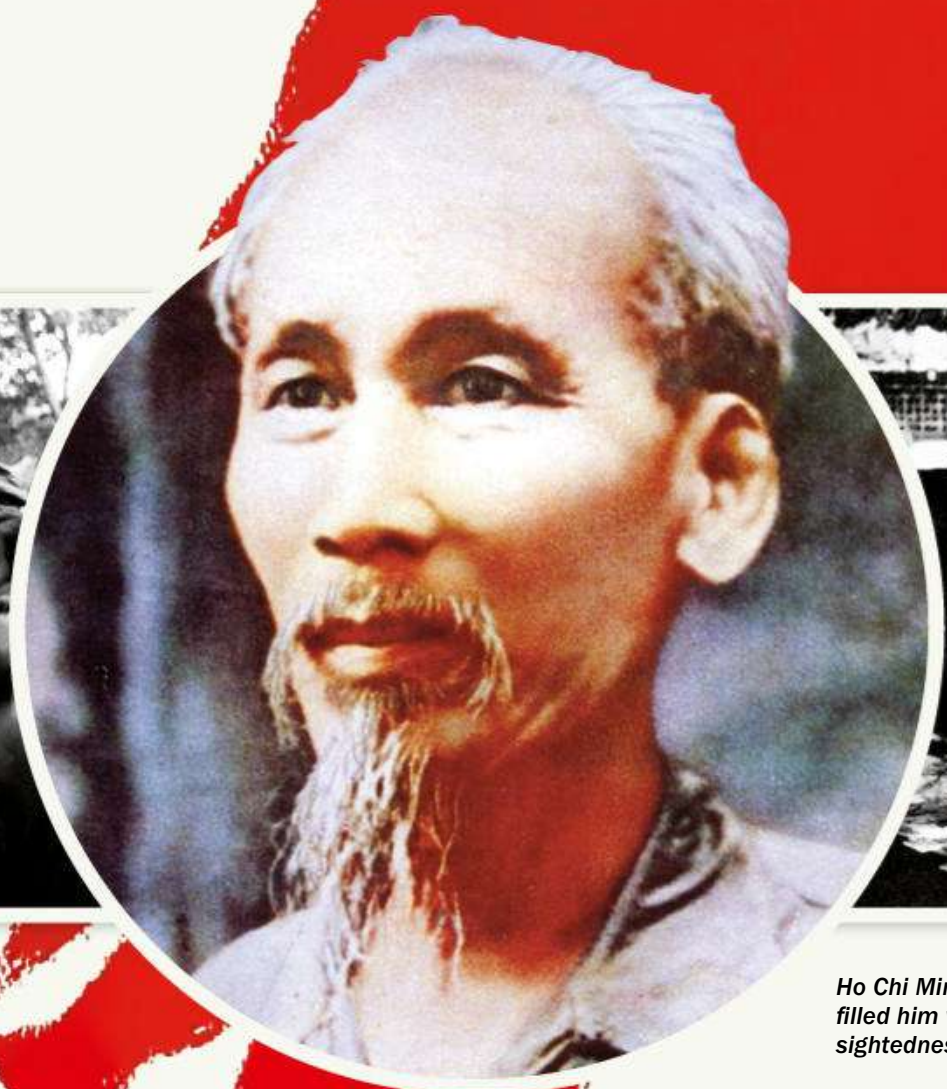
HO CHI MINH'S ART OF WAR

WORDS VIRGINIA MORRIS

The leadership of North Vietnam's revolutionary premier succeeded in defeating the colonial French state, and later South Vietnam and its Western allies



Ho Chi Minh is cheered by supporters, March 1951



Ho Chi Minh declared Lenin's ideas filled him with "enthusiasm, clear-sightedness and confidence"

Ho Chi Minh and General Vo Nguyen Giap study plans for the Dien Bien Phu campaign, 1953

Ho Chi Minh is credited as being the political leader who liberated Vietnam. He achieved this by first ending French colonial rule in 1954, then his strategies led to victory in the Vietnam War against the Americans and South Vietnamese in 1975. When he was born in 1890, French Indochina had just formed from Cambodia and Vietnam; Lao was added later. Many Vietnamese leaders looked for ways to end colonialism but none had made substantial progress. From observing previous methods, Ho designed his All-People's War model.

Ho's model comprised the three strategic fronts of political, propaganda and the military, linked by the Revolutionary Infrastructure. This infrastructure generally included 'Communist Party cells', which were then linked together by advanced 'couriers' using courier corridors, and 'guards'. This covert administration became a comprehensive shadow government with all the associated services there to support, control and expand a 'shadow nation'.

The objective was to fight a protracted war of attrition. Nevertheless, Ho knew that total victory could only be achieved through conventional units with symmetry on the battlefield with his enemy. To establish these conditions, the model was used to build Ho's fighting units and diminish the strength of the opposing army. Then, at a strategic moment, his military leaders could inflict one swift death blow on the conventional units of his enemy, so forcing them into unconditional surrender.

The revolutionaries administered two death blows, one against the French at Dien Bien Phu and the other against the South Vietnamese when Saigon fell. In this latter case, what the Western broadcasters presented was the symbolic end to the war, saw the tanks of the revolutionaries crashing through the gates of the Presidential Palace in Saigon – conventional communist troops annihilating the troops of the Southern Army. What actually happened was the annihilation of the Southern Army as described, but in liberated areas the Revolutionary Infrastructure became overt, carrying the population with them, while the rest of the clandestine people from Ho's model revealed themselves to take over the domestic, military and administrative apparatus of the South, from the post office to the Presidential Palace.

"HO'S MODEL COMPRISED THE THREE STRATEGIC FRONTS OF POLITICAL, PROPAGANDA AND THE MILITARY, LINKED BY THE REVOLUTIONARY INFRASTRUCTURE"

Ho's fledgling political-propaganda strategies

Initially Ho looked for a political-propaganda solution for Vietnam. In 1911, he left Vietnam and eventually settled in Paris. In 1920 he saw an article covering Vladimir Ilyich Lenin's *Thesis on the National and Colonial Questions*, which offered assistance in helping free colonial states from suppression. Ho recorded on reading Lenin's thesis: "What emotion, enthusiasm, clear-sightedness and confidence it instilled in me!"

Ho became a Leninist and shortly after arriving in Guangzhou, China, in 1924 he established the Vietnamese Revolutionary Youth League, a party with a broad nationalist appeal but run by a covert communist nucleus. This two-tier party structure became commonplace. During the French War, Ho formed the Viet Minh Front and for the Vietnam War the communists set up many parties, including the National Liberation Front. These two-tier 'front' organisations allowed him to successfully open up diplomatic relations with the Soviet Union and China but also win over the people, because while his allies would not accept a pure nationalist political party, the face of communism was not acceptable to the general population.

Ho ran courses in Guangzhou from 1925 to 1927, with many of the lessons focusing on courier work. Ho described the couriers and their corridors as the most important element for victory because it gave him the reach and control he needed. Ho added to their traditional roles of guides and those who transported documents by training them as fighters, spies and propagandists. On graduating, officials sent the students to different areas to conduct courier work which could also include building courier lines, establishing political cells, being propagandists and recruiting.

The 1930s saw Ho set up the Vietnamese Communist Party and with his increased ability to spread the revolution across Indochina, the French avenged his actions. Ho predicted that a military force might now be needed not only to protect his fledgling revolution but to guard against the threats on the horizon with the turmoil from the Second World War and the Second Sino-Japanese conflict (1937-45).

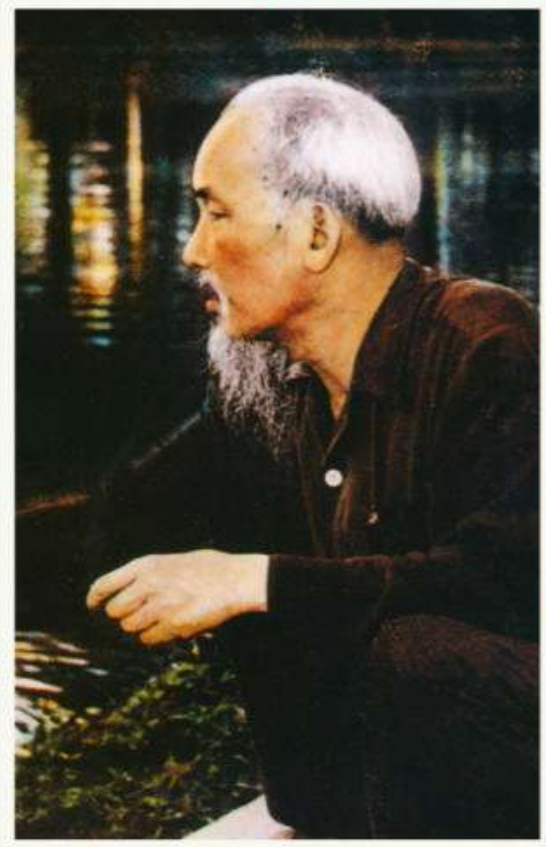
The military and the Revolutionary Infrastructure

To establish an army, Ho looked for an intelligent, dedicated revolutionary. In May 1940, senior communist party members escorted a young Vo Nguyen Giap to China as one of the contenders. Giap recalled on first meeting Ho: "Within the first few minutes I felt that I had known him for ages, familiar and warm with pure and simple mannerisms…" while Ho turned to his friend and whispered: "This boy looks like a girl!"

Ho instructed Giap to train locals and develop courier lines from the Chinese border towards the Red River Delta,

Images: Alamy, Getty

Ho inspects a unit of regional armed forces in Cao Bang during the campaign to oust the French, 1951



The communist leader pictured at the Presidential Palace in Hanoi, 1960

a mission known as the Southward March. Giap stood out because he allocated some of his trainees to three guard positions.

In the first category, trainees who preferred not to stray far from their native land returned to their village to protect them and find new recruits. In the second category, trainees who had grasped the concepts of guerrilla warfare were formed into either 'self-defence teams' or 'honorary fighting teams'. The self-defence teams defended the corridors, whereas the honorary fighting teams neutralised spies and informers. Within the third category, the best students formed paramilitary groups to be known as 'armed propaganda teams', with 'armed' referring to their duties as guards and 'propaganda' referring to mobilising the masses.

Giap's methods of guarding the courier network became a turning point for the revolutionaries because, when added to the pre-existing courier system, it formed the Revolutionary Infrastructure, called by the French l'infrastructure Clandestine Viet Minh and the Americans the Viet Cong Infrastructure (VCI).

The infrastructure spread from hamlet to hamlet, which empowered three changes that aided Ho in coming to power during the August Revolution in 1945. Initially, by designing ways to protect the courier network, Giap started to build a People's Army, meaning that everyone from a child to an elderly villager could be recruited to fight. This also enabled Giap to form a network of fighting villages. Often depicted in Hollywood films, each settlement had a guerrilla base; a battle area filled with tunnels, trenches, fortifications, mines, spikes and booby traps; as well as with a self-defence unit controlling stranger movements.

For the second change, Ho appointed Giap to be the commander of a new regular army, and on 22 December 1944 he founded the Vietnam Propaganda and Liberation Army. The third change saw the infrastructure strengthen the Viet Bac Revolutionary Base, enabling the communists to train and establish the army as well as form a liberated zone.

The French War

In 1945, Ho's Viet Minh came to power during the August Revolution. At the time he had to contend with both the French and the Japanese. Although some of Ho's model had been established, it did not keep pace with events. Ho's victory is more accredited to his followers harnessing a ground swell of unrest across Vietnam, rather than it being solely down to people supporting the Viet Minh.

To maintain control of Vietnam, two concepts Ho designed were 'political human shields' and 'two-faced puppet local administrators'. To establish human shields, he embedded his agents into rival political parties to occupy key posts or positioned weak people into them who would not challenge Viet Minh rule. For the two-faced puppets, Ho targeted villages where the infrastructure existed. He ordered the communist representative to approach the head mandarin and if he did not want to join the revolution, the representative then forced him into neutrality or to work covertly against his will. This gave the communists control of the population but with the figurehead being a person trusted by their enemy and accepted by the people.

The communists also engaged in various forms of propaganda. Civilian proselytising meant penetrating opponents' organisations, strategic services in society, political parties and ethnic groups so they could be guided either to support, or at least not to oppose, the revolutionaries. Ho's favoured method was military proselytising, described by him as "to win without fighting". During the Vietnam War, American soldiers often noted that when their base was overrun, the South Vietnamese failed to engage in battle or they even joined the communists.

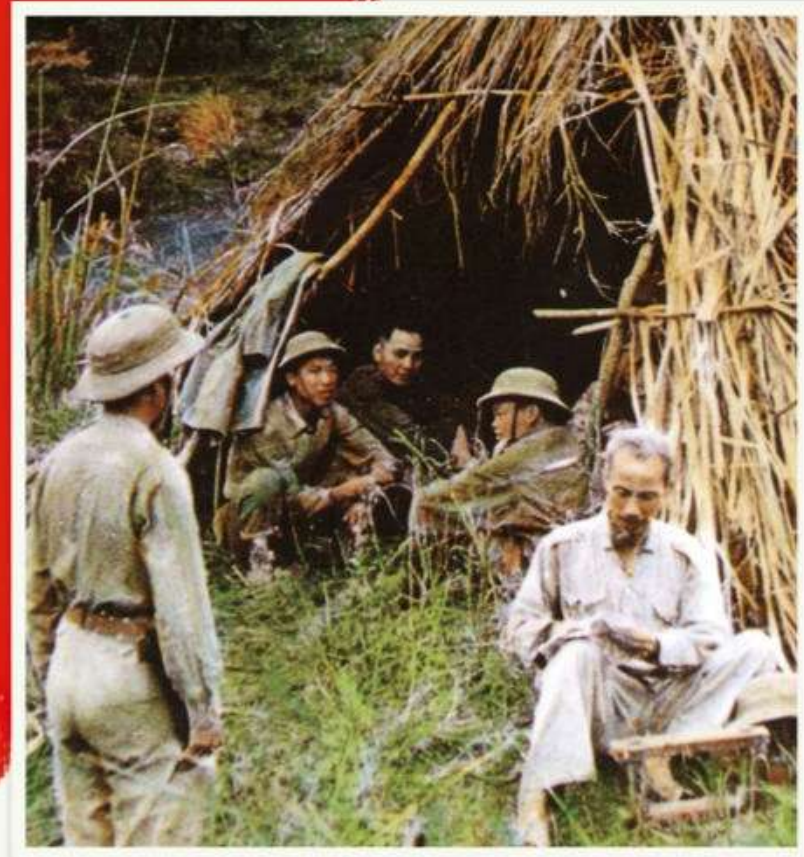
"ON 7 MAY 1954, THE FRENCH LOST THE BATTLE OF DIEN BIEN PHU AND IN DOING SO THEY BECAME THE FIRST VICTIM OF HO'S ALL-PEOPLE'S WAR"

Ho predicted that he would have to move to armed struggle because the French had every intention of recolonising Vietnam. In January 1946, he ordered Giap to evaluate the impact of the French in the south. On his return to the north he told Ho that the revolutionaries had to focus on guerrilla warfare and to serve this they had to build a strategic corridor through Lao and on to Thailand; a continuation of the Westward March which ran in parallel with the Southward March. Giap maintained that his units could use the corridor to advance on Cochinchina along the Mekong River valley. Finally, Giap discussed his 'war without boundaries' which would spread the French Army so thinly that they would fail in Vietnam.

Giap aimed to develop a three-layered military: irregular forces, predominantly guerrilla fighters operating at village and hamlet level; local regular forces within regular units and operating at district and provincial level; and a main regular army subordinate to zone or higher authorities.

For the first two layers Giap designed 'mobile guerrilla warfare' and converted his military units into 'independent companies, concentrated battalions'. Each company was to operate freely and mobilise the people, safeguard them from the enemy, form more armed units, eliminate spies, conduct military proselytising, dissolve puppet organisations, establish two-faced puppet local administrators, build the Revolutionary Infrastructure and facilitate fighting villages.

Ho (left) meets Zhou Enlai, the first premier of the People's Republic of China (serving from 1949-76)



The Vietnamese leader, shown here in 1950, pioneered strategies that are still used today

Independent companies gave Giap the means to form different fighting units within an area. The local guerrillas could initiate numerous small actions, with the larger mobile independent companies executing small battles. For larger battles Giap grouped independent companies into battalion-sized units. Due to their flexible nature, after the battle they could disperse into independent companies again and disappear into the forest or back into villages. This made it hard for the French to destroy an entire battalion.

The third layer came in 1949, when Giap formed his first division-sized unit. These units enabled him to move on to the counter-offensive and conduct larger conventional battles. With this increase in firepower, Ho instructed that the Westward March must continue. In 1953, the French looked to halt communist advances into Lao and constructed a camp at Dien Bien Phu.

On 7 May 1954, the French lost the Battle of Dien Bien Phu and in doing so they became the first victim of Ho's All-People's War. When examining why the French lost, crucial to the outcome was that their intelligence had failed to understand that they were fighting a new form of warfare. Consequently, the French used mainly conventional techniques to terminate Giap's army, and by doing this they ended up destroying the people and giving the communists greater recruiting power, making the expansion of Ho's model self-perpetuating. When the French finally understood the model it was too late because Ho had destroyed their financial and political capacity to wage a war.

The Vietnam War

After the French surrendered, the peace treaty resulted in Vietnam being divided into two sections at the 17th Parallel, known as communist North Vietnam and American-backed South Vietnam. It was planned to unite these two regions through elections but these were cancelled by the southern administration. After years of escalating violence, US ground forces first entered South Vietnam en masse in 1965 and with them came a new type of conventional combat based on modern technology. This did not mean that the revolutionaries' All-People's War became obsolete – they just upgraded it to suit.

Giap maintained his war without boundaries and three-layered military and he established another Southward March, which is best known as the Ho Chi Minh Trail. Politically the communists formed many different two-tier parties and their alliance strengthened with other communist nations such as Cuba. Propaganda still focused on nationalism, although the communists found it harder to recruit because the people of the Mekong Delta generally had better access to food. The Revolutionary Infrastructure spread across the South; a concept hard for US soldiers to understand as goodwill projects for developing villages were manipulated against them.

Nevertheless there were new glaring problems. The Americans had computers so could correlate information on suspects; they had helicopters so no location was safe for the communists; and they designed the Phoenix Program to destroy the Revolutionary Infrastructure. Although the communists expanded methods such as the Double Cross System to control the American and Southern apparatus, US sweep operations, battle formations, firepower, Phoenix and the fact the South was awash with US dollars severely undermined their ability to operate. Giap commented about the Vietnam War: "Our people prepared once again for a new stage in the long march towards independence and unification. That long march would turn out to be more miserable than the one we had just completed."

Yet the communists did not look to beat the US Army, as they had the French, but to force them home because Giap's units were no match for them. Throughout the Paris peace talks to end the Vietnam War, the communists employed political human shields as part of their strategy to oust the US. In 1973, after the communists had ground down any support for the war in the US, the Americans left, becoming the second victim of Ho's model; failing for much of the same reasons as the French before them.

Two years later, the South Vietnamese became the third victim. On 30 April 1975 the gates of the Presidential Palace in Saigon came crashing down as communist tanks rolled into the grounds. Total victory was achieved because special communist agents were tasked with proselytising those who they believed would be in power. The southern president himself, Duong Van Minh, although not pro-communist, was pro-revolution. Hanoi had started targeting him back in the early 1960s and Minh knew much of his government members were either communists or pro-revolution.

Future understanding

Nearly 50 years have passed since the end of the conflicts, but Ho's All-People's War is still relevant. Other groups are using strategies either from it or that have parallels to it, such as when the US and its allies went into Afghanistan in 2001. The US quickly used elements of the Phoenix Program, now named Kill/Capture, against the Taliban's shadow government, although with limited success.

For the Americans, the Vietnam War lasted from 1955 to 1975, with the war in Afghanistan being recorded as just a few months longer. Both conflicts for the US and her allies failed to achieve their full stated objectives. Subsequently, without a comprehensive study of an All-People's War model, there is a danger of allied nations being dragged into future protracted asymmetric conflicts but again with no satisfactory outcome.

Images: Alamy, Getty

LEOPARD 1

This innovative vehicle was the first main battle tank developed in post-WWII Germany

WORDS **MICHAEL E HASKEW**

MAIN ARMAMENT

The main weapon of the Leopard 1 was the licensed-built 105mm L7A3 L/52 gun originally produced by Britain's Royal Ordnance Factory. An attempt to upgun to a 120mm weapon was later abandoned.

TURRET

The welded turret of the Leopard 1 housed the radio and included two cupolas, for the commander and gunner. The original configuration of the turret underwent significant changes during the tank's service life.

A Leopard 1 tank of the Norwegian Army ploughs through heavy snow

HULL ARMOUR

Although its frontal hull armour was 70mm thick, the overall protection of the Leopard 1 was deemed inadequate by some observers considering the available anti-tank weapons at the time of its deployment.

Images: Getty, Wiki / PD / Gov

In the wake of the Second World War, the development of armoured fighting vehicles was understandably slow in the Federal Republic of Germany. Not until November 1956, only a few months after the country had reconstituted a standing army, did the West German military issue specifications for the development of a main battle tank that would be a sufficient replacement for the aging US-produced M47 and M48 Patton tanks that populated its small armoured formations.

In 1957 a joint venture with France was undertaken, enabling both countries to contribute to the costs of design and development of a prototype. The intention was that each nation could deploy the vehicle its own forces and perhaps license internationally. Italy joined the programme in the autumn of 1958, and in Germany the design was named Europa Panzer. However, as the effort proceeded it became apparent that the necessary level of cooperation would not be achieved and the decision was made to go ahead independently.

The genesis of the Leopard 1 main battle tank was somewhat laborious. Several prototypes were developed for testing in 1960, and the Porsche Prototype II became the early favourite. A year later a pre-series of this design was authorised, and in early 1963 the Porsche tank was selected. The West German Defence Ministry ordered 1,500 tanks to be delivered between 1965 and 1970. Contractor Krauss-Maffei began production of the newly dubbed Leopard 1 in early 1964, and the first operational model was delivered to the West German Army in September 1965.

LEOPARD 1

COMMISSIONED	1965
ORIGIN	GERMANY
LENGTH	8.29M (27FT, 2IN)
RANGE	600KM (373MI) ROAD; 450KM (280MI) CROSS COUNTRY
ENGINE	1X 10-CYLINDER MTU MB 838 CAM M500 MULTI-FUEL GENERATING 619KW (830HP)
CREW	4
ARMOUR	10-70MM (0.39-2.7IN)
PRIMARY WEAPON	1 X 105MM (4.1IN) ROYAL ORDNANCE L7A3 L/52 RIFLED GUN
SECONDARY WEAPON	2 X 7.62MM (0.3IN) RHEINMETALL MG3 OR FN MAG MACHINE GUNS

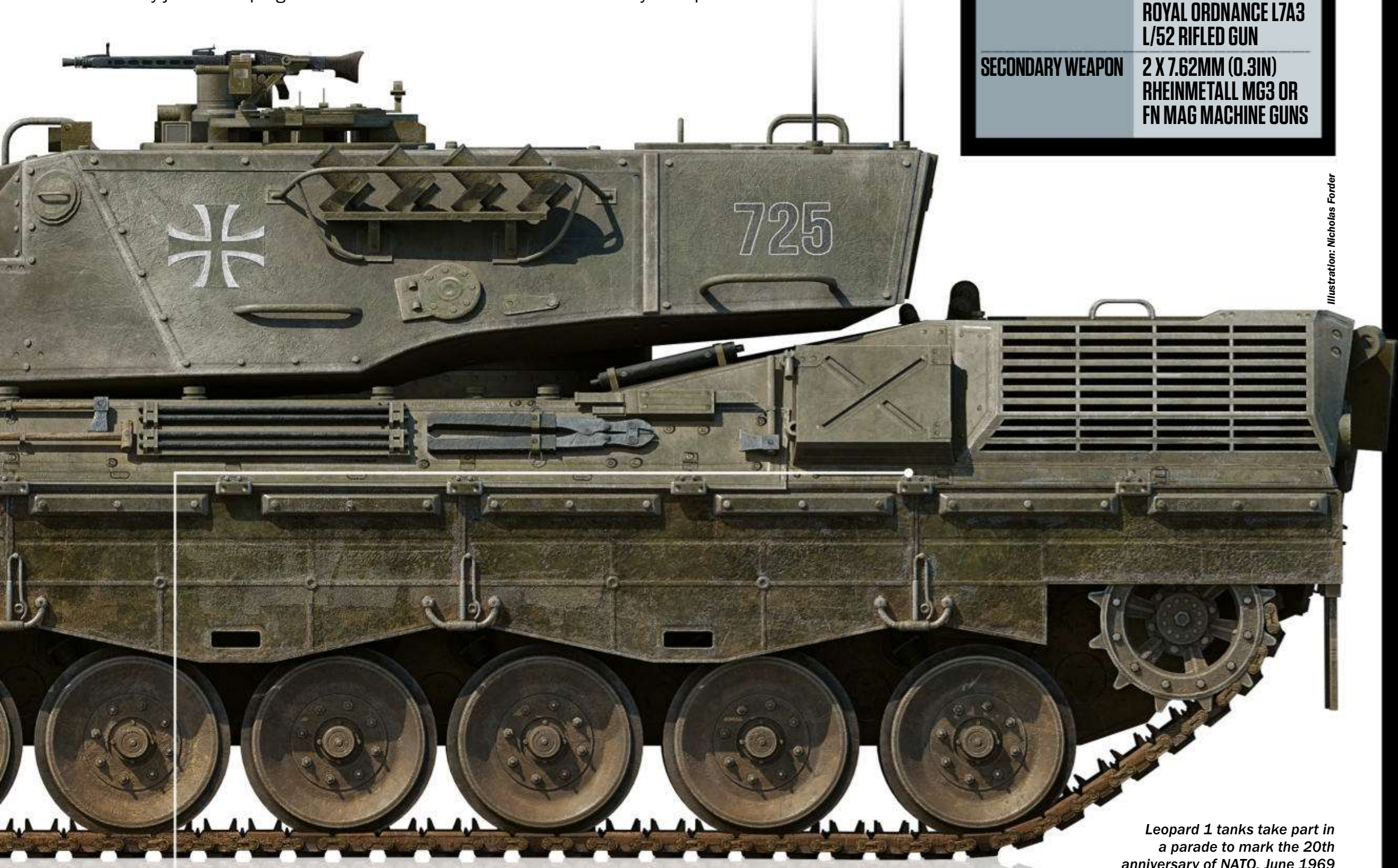


Illustration: Nicholas Forder

POWERPLANT

The 10-cylinder Daimler Benz MTU MB 838 Cam M500 multi-fuel engine was capable of running on diesel, gasoline or aviation fuel while providing the best power to weight ratio among contemporary tanks.

"SEVERAL PROTOTYPES WERE DEVELOPED FOR TESTING IN 1960, AND THE PORSCHE PROTOTYPE II BECAME THE EARLY FAVOURITE"

Leopard 1 tanks take part in a parade to mark the 20th anniversary of NATO, June 1969

The 105mm L7 gun of this Leopard 1 tank in the RAF Museum was a primary field gun in the 1960s

The rifled L7 main gun of the Leopard 1 fired a variety of ammunition, as shown in this museum display

ARMAMENT

The licence-built copy of the powerful 105mm L7A3 L/52 main gun of the Leopard 1 main battle tank was a design popularised in the late 1950s and produced by the UK's Royal Ordnance Factory and later BAE Systems. It was built with a solid construction barrel in a single piece, a screwed-on breech ring and bore evacuator. Along with stout muzzle velocity, ease of service meant that the barrel could be changed in the field in about 20 minutes if necessary. A Cadillac Gage stabilisation system was installed with Leopard 1 variants along with a thermal sleeve to prevent warping, and these enhanced the gun's accuracy. In the 1980s, later variants were trialled with upgunned 120mm (4.7in) weapons, but this was later abandoned. 7.62mm machine guns were pintle mounted on the commander's hatch and coaxially.

A stabilisation system and thermal sleeve improved the main gun's accuracy

Troops from the Australian Army's 12th/16th Hunter River Lancers ride past a Leopard 1, March 1988

"ALONG WITH STOUT MUZZLE VELOCITY, EASE OF SERVICE MEANT THAT THE BARREL COULD BE CHANGED IN THE FIELD IN ABOUT 20 MINUTES IF NECESSARY"

The Leopard 1 tank is fast and has a low silhouette

DESIGN

The design of the Leopard 1 main battle tank was a compromise between the three tenets of an effective armoured fighting vehicle – firepower, armour protection and mobility. Most experts deemed the armour protection as too thin for combat survivability on the modern battlefield. The front hull armour was 70mm thick, while the turret glacis was 60mm, and the classic slope improved resistance penetration. But compared to contemporary rivals, the armour protection was suboptimal. The tank presented a low silhouette, a distinct advantage in combat, and its speed was a definite asset, which is evidence of the attempt by the engineers who created the Leopard 1 to achieve reasonable balance in design characteristics.

The tank's armour protection was considered by most experts to be too thin

ENGINE

The MTU MB 838 Cam M500 multi-fuel engine was routinely fuelled with diesel and produced a top speed of 65km/h (40mph) on the road with 830 horsepower at 2,200rpm. While it developed the best power-to-weight ratio of any contemporary main battle tank powerplant, the engine could be pulled and replaced in the field in approximately 20 minutes – a distinct advantage. The Daimler Benz engine could run on diesel, gasoline, or even aviation fuel if necessary, and it provided excellent manoeuvrability for the comparatively light Leopard 1, which weighed in at 39 tonnes (38.3 tons).

The Daimler Benz MTU MB 838 provided excellent mobility for the Leopard 1 main battle tank

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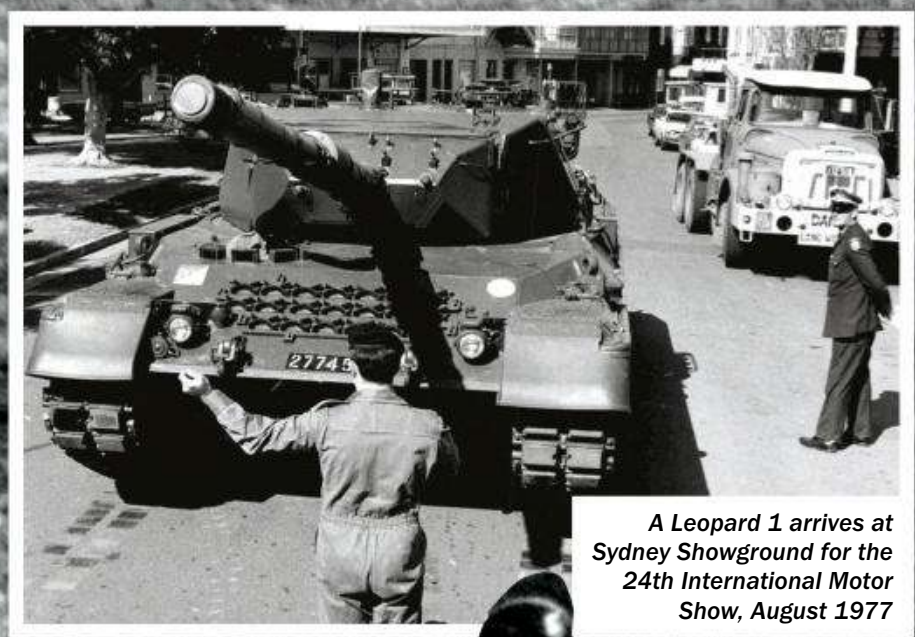

A Leopard 1 arrives at Sydney Showground for the 24th International Motor Show, August 1977

After nearly 60 years the Leopard 1 remains in service with several countries

The Leopard 1, pictured here during a wading exercise, has a crew of four

"THE LEOPARD 1 HAS BEEN DEPLOYED TO THE BALKANS AND AFGHANISTAN, AS WELL AS IN THE CONTINUING UNREST OF THE TURKISH CONFLICT WITH THE KURDS"

CREW COMPARTMENT

The Leopard 1 main battle tank was serviced by a crew of four. Its hull was divided into two compartments, engine to the rear and separated from the forward fighting compartment by a firewall. The driver was seated in the hull to the right, while the commander and gunner occupied the right side of the cast turret, with the loader on the left feeding shells into the breech of the 105mm L7 main gun by hand. The commander viewed the battlefield with any of eight periscopes that were arranged in the turret top hatch ring, and infrared equipment was substituted for one of them in later variants.

The tank's commander can view the battlefield from eight periscopes situated in the turret top hatch ring

The second cupola was used by the tank's gunner, positioned towards the front of the turret

This Leopard 1 of the German Army was photographed on 1 August 1968 during exercises dubbed Operation King's Gambit

SERVICE HISTORY

Nearly 60 years after its original production run, the Leopard 1 main battle tank remains in service with the armed forces of several nations. Its original production model was followed by numerous variants such as the 1A1, which introduced the stabilised gun along with improved tracks; the 1A2 with a sturdier cast turret, night vision equipment and NBC (nuclear, biological, chemical) defences; the 1A3 with improved armour; and the 1A4, the last used by the German Army, with integrated fire control. Altogether at least 10 major variants were produced, including engineering, bridge-laying and recovery vehicles.

The Leopard 1 has been deployed to the Balkans and Afghanistan, as well as in the continuing unrest of the Turkish conflict with the Kurds. Belgian Leopard 1 tanks served in Kosovo, while in 1994 seven Danish Leopard 1 tanks exchanged fire with Bosnian-Serb forces in the first documented combat involving the type and suffered no losses. Italian Leopard 1 tanks also deployed to the Balkans but saw no action. A squadron of Canadian Leopard 1 tanks of Lord Strathcona's Horse deployed to Afghanistan in the autumn of 2006 and fired their guns in response to a Taliban rocket attack the day after arrival. The Canadian squadron of 17 tanks remained in Afghanistan until the summer of 2011.

Tank crews of the Bundeswehr run to their Leopard 1 tanks

All images © Alamy, Getty, Wiki / PD / Gov

THE FIERCE STRUGGLE FOR ITALY'S MOUNTAINOUS SLOPES

Explore this complete guide to the Battle of Monte Cassino, one of World War II's bloodiest battles, from the Anzio beach assault to the controversial Allied bombing campaign

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HOME FRONT

64 PHOTOGRAPHS FROM THE FRONTLINE

A look inside photojournalist Anastasia Taylor-Lind's new exhibition on the Russo-Ukrainian War, hosted by Imperial War Museums

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Anti-government protests, Kyiv February 2014 *Smoke billows from burning tyres as protestors hold frontline barricades, built around a monument in central Kyiv.Clashes with riot police turned increasingly violent in the days before the overthrow of the Ukrainian government. The protests were born out of frustration with the President's choice to form closer ties with Russia over a deal with the European Union.*

PHOTOS FROM EUROPE'S FRONTLINE

A new exhibition from photojournalist Anastasia Taylor-Lind tells the stories of ordinary Ukrainians caught up in the conflict with Russia

Though escalating catastrophically in 2022, the Russo-Ukrainian War began eight years earlier with Russia's invasion and annexation of Crimea. From that moment, the people of Ukraine began living under increasing military threat from their powerful neighbour and former Soviet overlord, while historic and cultural divisions in the eastern Donbas region flared up into open rebellion. Though in 2014 few Ukrainians could, or wanted, to envision the dreadful turn the conflict would later take with the full-scale invasion of their country, their resolve and determination to resist Russian aggression was clear from the start – even while global solidarity and support was at that time lacklustre.

Anastasia Taylor-Lind's visual narrative of this horrific conflict begins here, in the unrest, protests and insurrections of 2014, which galvanised a nascent post-Soviet state into a united wartime nation fighting for its future and very survival. Spanning eight years of the conflict, Taylor-Lind's photographs, on display at the Imperial War Museum London in spring 2023, show the lives of ordinary Ukrainians caught up in the crossfire, as well as, tragically, the crosshairs of the invader.

"THEIR RESOLVE AND DETERMINATION TO RESIST RUSSIAN AGGRESSION WAS CLEAR FROM THE START"

Bucha, April 2022
Natalia Lukyanenko watches the excavation of a mass grave near Kyiv. Some of her family, including her son, were killed during a Russian occupation of the area. This neighbourhood was so overwhelmed with dead that a mass grave was used. When the area reverted to Ukrainian control the bodies were exhumed by forensic investigators.

"THE VISUAL NARRATIVE BEGINS WITH 2014'S UNREST, PROTESTS AND INSURRECTIONS THAT GALVANISED THE NATION"

Poland, March 2022.
Lyudmyla and Nelya Tkachenko at a temporary refugee shelter in Poland, March 2022.The impact of the Russian invasion on Ukrainians has been devastating, causing millions to flee the country and leaving millions more internally displaced.

Opposite page left: ***Donbas, 2019***
Anna Dedova at her son's graveside near the frontline. He was accidentally killed by a hand grenade he found near his home. An estimated 3,400 civilians were killed in Donbas between April 2014 and December 2021.

Oppposite page right: ***Donbas, 2018***
The Grinik family in their garden just 50 meters away from a Ukrainian frontline position. Since 2014, Ukrainians like Olga and Nikolay Grinik have had to adapt to living under the shadow of conflict. This has meant life has continued at times without basic amenities such as electricity, medical services, and water supplies.

Images © Andrew Brooks, Anastasia Taylor-Lind

Ukraine: Photographs from the Frontline is a touring exhibition running from 3 February – 8 May 2023 at IWM London

VIETNAM'S 'BAND OF BROTHERS'

Q&A WITH IAN GARDNER

How 3rd Battalion, 506th Airborne overcame adversity in the jungles of Southeast Asia, continuing the legacy of their WWII forebears

Up until the counterinsurgency in Afghanistan, the Vietnam War was the longest armed conflict involving the USA. It remains a complex and misunderstood war, framed for many by a succession of arguably misleading (albeit entertaining) Hollywood movies. In his new book *Sign Here for Sacrifice*, author and historian Ian Gardner focuses on the story of one battalion, an outfit tasked with living up to the prestigious legacy of the 101st Airborne. Gardner describes how the 3rd Battalion, 506th Airborne (3/506) was formed from volunteers, and put through rigorous training before shipping out to take on the Viet Cong in the unrelenting jungles on the frontline. A former Para himself, Gardner recounts the 3/506's first search and destroy missions, as the battlefield tactics and military theory of veterans such as the inimitable Lieutenant Colonel John Geraci were put to the test. Here Gardner discusses his new book and what drew him to the story of the 3/506.

What initially interested you in the story of the 3rd Battalion, 506th Airborne?

The enigma surrounding airborne soldiering has always been of deep interest for me. Growing up near Aldershot in Hampshire, we often saw recruits from Browning Barracks or Depot Para wearing their camouflage peak caps, being tested to the limit either in training or on Pre-Parachute Selection known as P Company. This fascination grew until eventually I stepped up and qualified as a reserve paratrooper in 1988.

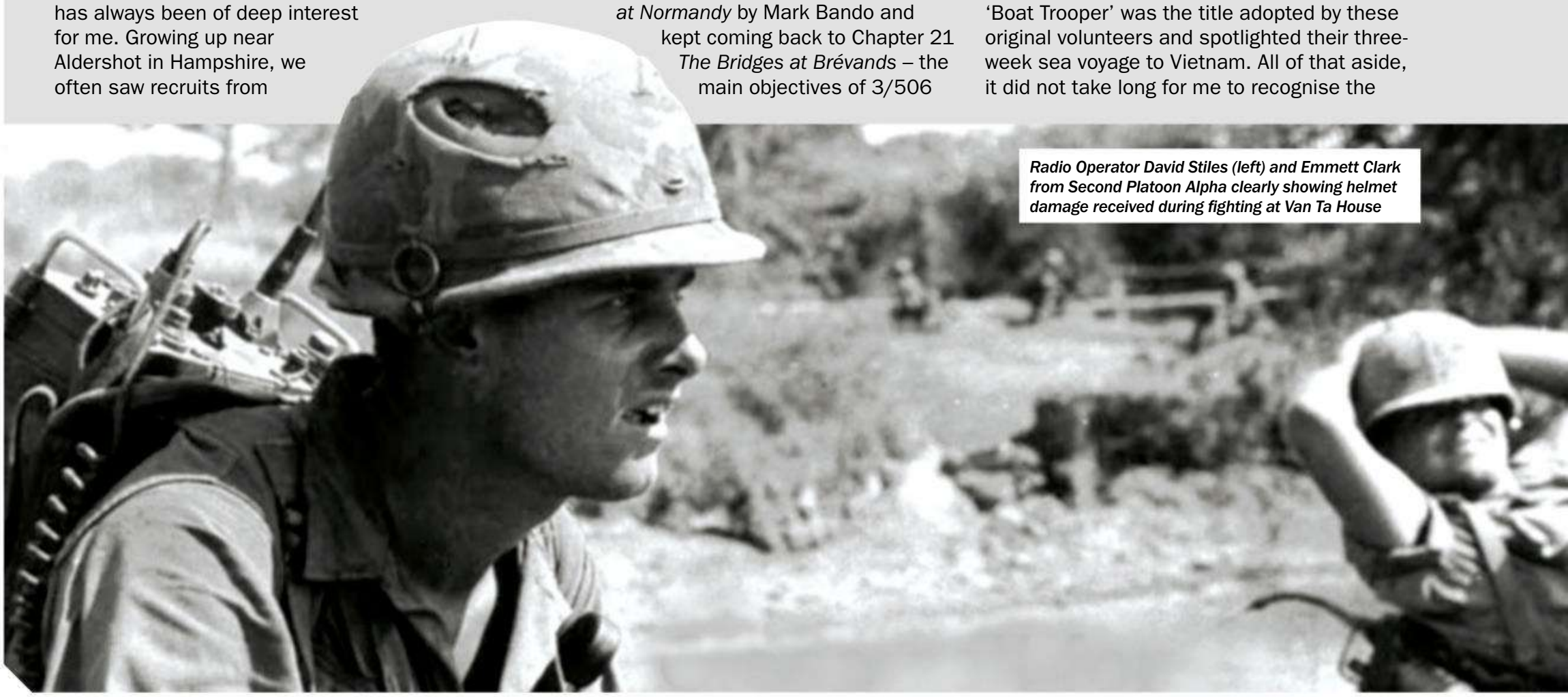
The battalion command staff shortly before deployment

Some years after leaving Support Company, 10 Para, I discovered the book *101st Airborne at Normandy* by Mark Bando and kept coming back to Chapter 21 *The Bridges at Brévands* – the main objectives of 3/506 on D-Day. Unlike all the other chapters, this section was short, sketchy and as it turned out, a little inaccurate, but nevertheless what Mark had recorded was tantalising and I was hooked.

This fabulous publication and my subsequent meeting and writing partnership with Roger Day all contributed to the creation of our seminal bestseller *Tonight We Die as Men*. It is fair to say that Mark and moreover Roger were my gateway guides into the world of 3/506 and their contribution to WWII.

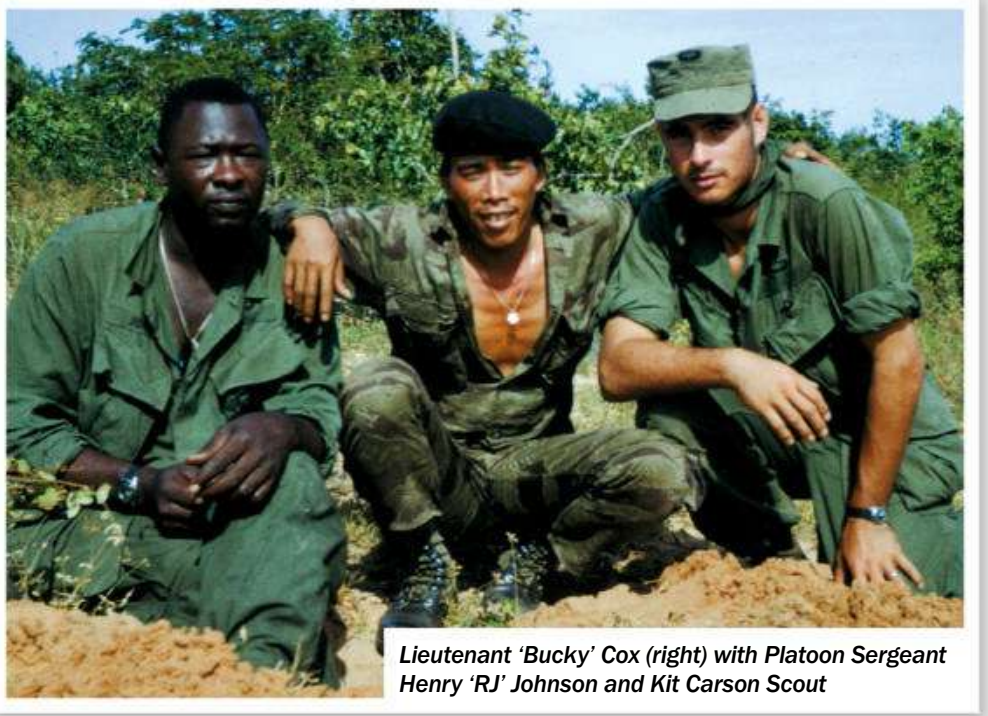
Some two decades and four solo books later, with my written work now firmly planted on the global history map, a friend encouraged me to consider the battalion's re-birth in April 1967 and so eventually *Sign Here For Sacrifice* became the culmination of everything that had gone before. At first I was not confident that the correct apparatus was in place to achieve my vision but after C Company veteran Sergeant Mike Krawczyk rallied to the cause we never looked back.

Many discussions followed as Mike gathered over 30 'Boat Troopers' and instilled them with confidence in my ability to get the job done and how important this story was going to be for everyone concerned including me. By the way, 'Boat Trooper' was the title adopted by these original volunteers and spotlighted their three-week sea voyage to Vietnam. All of that aside, it did not take long for me to recognise the



Radio Operator David Stiles (left) and Emmett Clark from Second Platoon Alpha clearly showing helmet damage received during fighting at Van Ta House

A convoy carrying 3/506 leaving Cam Ranh Bay on 26 October for Phan Rang



Lieutenant 'Bucky' Cox (right) with Platoon Sergeant Henry 'RJ' Johnson and Kit Carson Scout

synergy between the two eras as I threw myself into bringing this inspiring tale of service and duty back to life.

How important was the prestige, or daresay 'legend', of the 101st Airborne name, to 3/506?
As a division, the weight of legacy has been proudly bestowed and worn on every shoulder since WWII. But beyond this obvious iconography the Vietnam era 3/506 rallied around another important name – Currahee. Currahee was no accidental happenstance but a direct homage to legendary Colonel Robert F Sink's original Native American regimental motto meaning 'stands alone' which was also adopted by Geraci.

Mount Currahee was the Appalachian mountain in Georgia that dominated Camp Toccoa – birthplace of Sink's 506 Parachute Infantry Regiment. This term was dusted off and absorbed by Geraci, who clearly understood that it would define his latest generation of warriors. First Brigade had already been in Vietnam since 1965 under the leadership of Brigadier General Salve Matheson, who had been a highly valued member of Sink's staff during World War II. In part 3/506 was Matheson's brainchild and choice of leadership, training and preparation were all essential components for his new Manoeuvre Battalion. Geraci quickly reintroduced the circular vintage 'para-dice' patch and had it sewn onto the battalion's purple PT shorts in replication of the Sink generation. In further homage, he also commissioned a battalion prayer that named Third Battalion's last two casualties of WWII.

As Second and Third Brigades were not yet on alert for Vietnam, it made Geraci's outfit a far more attractive proposition for the young paratroopers. This opportunity to serve with a bespoke unit also appealed to those seemingly stuck in limbo at Fort Campbell. Many had also been recently inspired by the 173rd Airborne Brigade, who jumped into battle north of Saigon at the beginning of Operation Junction City. It was fair to say that morale was stratospheric as the faithful of '67 could not wait to get into the fight and 3/506, with its bespoke proposed parachute role and obvious historical back-story, became their conduit and savour for action.

"WHEN HE WAS SATISFIED ALL WAS CLEAR, SERGEANT BASSISTA ADVANCED ALONE TO METHODICALLY FINISH OFF ANY WOUNDED WITH THEIR OWN WEAPONS"

The difference between the Airborne forces of WWII and Vietnam are perhaps more stark than their similarities – not least with the primacy of helicopters – but what main similarities do you see between the two eras?
Obviously things had changed since 1945 but that independent volunteer spirit was abundant and although the guys were now multi-racial their sense of brotherhood, loyalty and duty still remained the same. Likewise the physical challenges for Airborne selection and parachute training had not really changed either. Senior NCOs and Cadre were still handpicked in the same fashion, but unlike '42 most had already served at least one previous tour in Korea or Vietnam or both. However, US Army basic infantry preparation was now longer with every potential airborne recruit having gone through eight weeks Basic followed by another eight weeks of Advanced before volunteering for three weeks at jump school.

Some might argue that in 1942 the experimental 'A' Stage, specifically created by Sink, was a tougher deal but I do not believe that is necessarily true. Designed to select and mould raw civilian volunteers into high-value shock troops, the entire 15-week course also included jump school as its final process. Back in the day, after gaining their wings the successful candidates went on to take part in several large field problems before being 'officially' attached to the 101st Airborne Division and dispatched to England. In comparison, Geraci's men were already fully trained with plenty of previous in-house divisional experience when they began filtering into the re-activated battalion.

Like their WWII counterparts, the men took part in several ultra-long-distance battle marches and parachute drops as over the next five months each was conditioned for their upcoming role in Vietnam. Upon arrival in Phan Rang everyone enrolled into two weeks of Proficiency Training to bring them up to speed with the latest operational attentions and details. Ironically, the only thing neglected by the syllabus was quality continuation training for inner city urban warfare. This turned out to be an oversight, especially when heavily entrenched VC forces had to be cleared from Phan Thiet during Tet. After Phan Rang most officers and top tier NCOs were sent up north for a week of OJT – 'on the job training'. Here the guys participated in active combat patrols with their counterparts in First Brigade. The term 'shock troops' could still be levied as Third Battalion was deployed to stop an insurgent war in the jungles, rice paddies and mountains, and this style of mission execution was worlds apart from the fighting experienced in Europe during World War II.

Small- and large-scale search and destroy operations were now the name of the game, all initiated by helicopter insertion known as 'Combat Assaults'. However, General William Westmoreland's promise of a battalion combat drop was still open and the men were enthusiastically looking forward to their own 'D-Day' challenge. Thankfully when that moment came, the jump was scrubbed just as the guys walked out onto the tarmac.

As a former Para yourself, what similarities and differences do you see between the way the 3/506 trained and operated with your own training? Is there a common experience and shared traits between paratroopers?
Although I was a member of a Territorial Army Battalion the guts and drive required to become a paratrooper and wear 'the badge of courage' was still exactly the same. In my experience P Company was and perhaps still is a runner's course that required cool controlled aggression, stamina and a good amount of barrack room humour. During the cold wet winter of 1987, I was running a marathon in under three hours and had the Training Area on my doorstep. Before joining 10 Para, I tackled the tough Ten Mile P Company course every Saturday morning carrying 37.5lb [17kg] of equipment for nearly four months.

Images: "Bucky" Cox Archive, Freeman "Dee" Dallas, Jerry Gomes, Richard Pittman Archive © Mike Krawczyk, US Army

Lieutenant Colonel John Geraci in early 1969

Always pushing myself, the ability to go above and beyond is a common mentality found in people like me, who, every step of the way, earned their place on the aircraft through blood and sweat. Being 'beasted' by the Directing Staff was something everyone had to endure but if you could hold your own, they pretty much left you alone.

I loved P Co but it was only down to fitness and good preparation that made the process so enjoyable, well at least for me. I know this feeling is shared and relished by every single one of my contributors, who were also volunteers in search of a new challenge. The ideals and experiences we absorbed back then shaped us into the breed of humans we are today with our own set of unusual terminologies and positive can-do attitude.

Before serving in Vietnam, 3/506's (later Colonel) John Geraci had already served in WWII and the Korean War. Was this vast experience typical or unique for officers in the US Army in Vietnam?

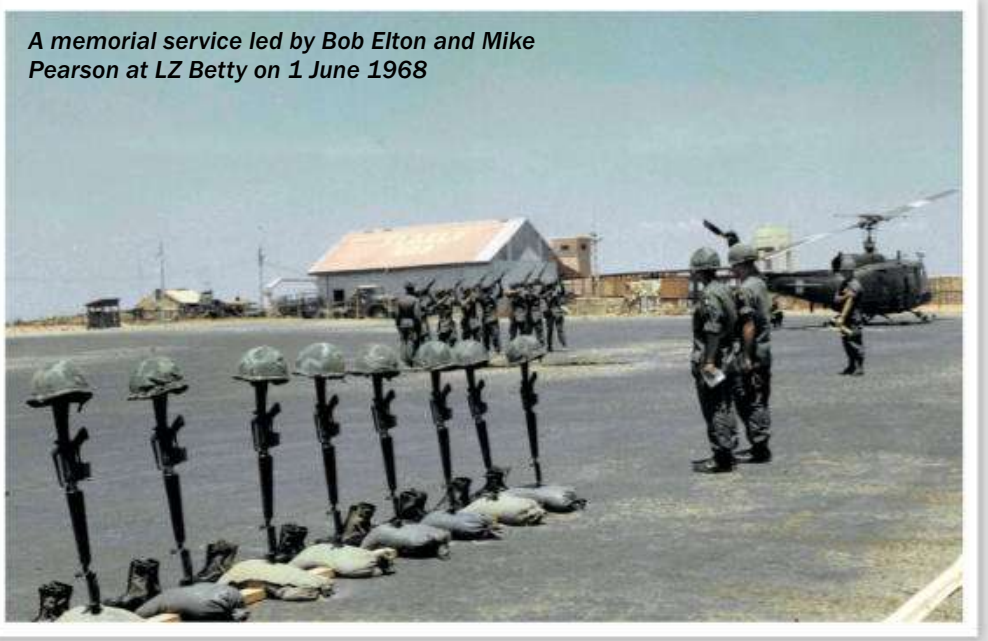
For the old sweats this was not necessarily unusual although in Geraci's case his career spanning three wars and four Silver Stars did have many unexpected twists and turns. The colonel was a larger-than-life character who inspired the same response from his soldiers. I would like to point out that he was from a working class Italian family and had not been to West Point or any of the other prestigious military academies but joined the Marine Corps on his 18th birthday as a private first class. After World War II he went back to college and studied English and Philosophy, while earning extra money as a door-to-door salesman.

On New Year's Day 1949, then an Army reservist, Geraci was called up to attend Officer Candidate School before being sent to Korea, where he won his first two Silver Stars for Bravery. However, Vietnam would become his most significant experience of conflict and this is where things get interesting. During his first tour in 1960, with the Military Assistance Advisory Group (MAAG), Geraci's ability to speak several languages, especially French, proved invaluable. Promotion to lieutenant colonel soon followed, along with a staff appointment to the Joint Unconventional Warfare Task Force.

A second tour in '63 brought him into close contact with Major General Duong Van Minh, who at that time was open to the possibilities of regime change. In my opinion this kind of political awareness elevated Geraci to a somewhat unique level but more importantly proved to be a valuable asset when later

A UH-1H Huey delivering a squad from 3/506 during one of many combat assaults around Phan Thiet

Liston Green from C Company on patrol in 'Disneyland' while an air strike is carried out in the middle distance



A memorial service led by Bob Elton and Mike Pearson at LZ Betty on 1 June 1968

dealing with the class-conscious and petulant South Vietnamese Army.

In the early 1960s, the small numbers of US troops deployed in Vietnam gained experience of the war developing there. To what extent did this experience help to prepare the vast numbers of troops deployed later in the 1960s?
As previously mentioned, Geraci had been among 385 personnel sent in 1960 to bolster the MAAG who had been active in Vietnam for nearly five years. However, before taking command of A-3/506, Captain Thomas Gaffney's earlier covert service perfectly illustrates your question. Gaffney had previously served three tours with Special Forces (SF) in Laos providing training against communist Pathet-Lao insurgents for the Laotian Airborne and indigenous Mountain Guerrilla Forces.

Gaffney brought a big slice of this experience to Third Battalion, and was the reason why Geraci went so far out of his way to bring his old friend on board. At 37 years old Gaffney was regarded as an elder statesman by young West Pointers Bill Landgraf and Nick Nahas, who had been selected to lead Bravo and Charlie companies. Always on hand with advice and criticism, Gaffney played an essential role in their growth and general awareness of organisations such as the CIA. You can be certain that many like Geraci and Gaffney (who passed away in December) who made up MAAG and SF in those early days went on to fill important combat command roles in the years that followed. I can only speak for the people I know but in my opinion this level of knowledge was absolutely invaluable as it inevitably filtered down to those who signed on in 1967.

Combat patrolling was a major part of 3/506's role and the US infantry in general. How was this tactic developed by the US and how effective was it on the ground?
In my humble opinion the helicopter insertions developed by Westmoreland were an essential component to counter-insurgent disruption. But were there enough men available to carry out those long, silent, gruelling and deadly search and destroy missions? Of the half-a-million US personnel who were in Vietnam by '68 only around 15 percent were actually destined for battle. It was a proven fact that multiple patrolling deterred attacks and forced the enemy to migrate into open areas where artillery and air power could be more effectively used against them. This could be scaled up or down depending on task and opposing troop strength. The Viet Cong suffered a number of hefty defeats during the Tet Offensive and many defected under an 'open arms' policy known as Chieu Hoi. Predominantly these individuals became scouts and led US infantryman back to thousands of remote hidden camps, booby traps, caches of weapons, medicine and food.

However, for many reasons ongoing home support was rapidly dwindling owing to a negative groundswell in reporting rhetoric from influential American media outlets that naively argued Tet was a political victory for Ho Chi Minh. But despite this sudden confusion on how to move forward, in places such as the Central Highlands, America's only way to actively engage was on foot by gut-busting, exhaustive search and destroy supported by cloverleaf and pinwheel ambushes.

Apart from Congress and the White House, the real enemy on patrol was still heat exhaustion and no matter how much fluid an individual carried it was never enough. Of course, natural water was readily available but it always came with the risk of dysentery and other diseases. Personal hygiene was almost impossible, but to prevent rusting and cycling issues all weapons had to be maintained and oiled at least twice a day.

Many NCOs developed their own preferred patrolling methods that were not necessarily 'by the book', especially when it came to ambush techniques. For example, Sergeant Edward Bassista from A Company regularly placed double the 'official' requirement of claymore anti-personnel mines around his position. Once triggered, he would have his squad hold fire and wait. When he was satisfied all was clear, Bassista advanced alone to methodically finish off any wounded with their own weapons. It was a personal tactic that really worked and caused utter confusion to any insurgent squad unlucky enough to enter Bassista's kill zone. Simplified, this war demanded instant decisions to unconventional questions and no doubt the US search and destroy ethos was working. However, this success in my opinion was undermined by the South Vietnamese Army's overall failure to pacify its own civilian population.

"EVERYONE TO A MAN STILL MOURNED LOST FRIENDS"

What was it like speaking with veterans of 3/506 in the making of this book? What was your impression of their feelings about the war, looking back?
From the very first chapter I set out to make sure that every reader became fully invested in our main contributors. The story is told through honest, passionate and easy prose that I feel marks a positive turning point in my writing. Relief, regret, validation, recognition… the interview process was a revelation on many levels. A number of the guys have now become close friends and no doubt will continue to be so for many years to come. Many expressed feelings of frustration and relief and were proud that their very own 'Band of Brothers' story was finally being offered up to the world after more than 50 years. Everyone to a man still mourned lost friends (whose stories we also follow) and wished perhaps they could have done something more to save them. There is still so much love and respect between the survivors, who are a rare breed and getting rarer year on year.

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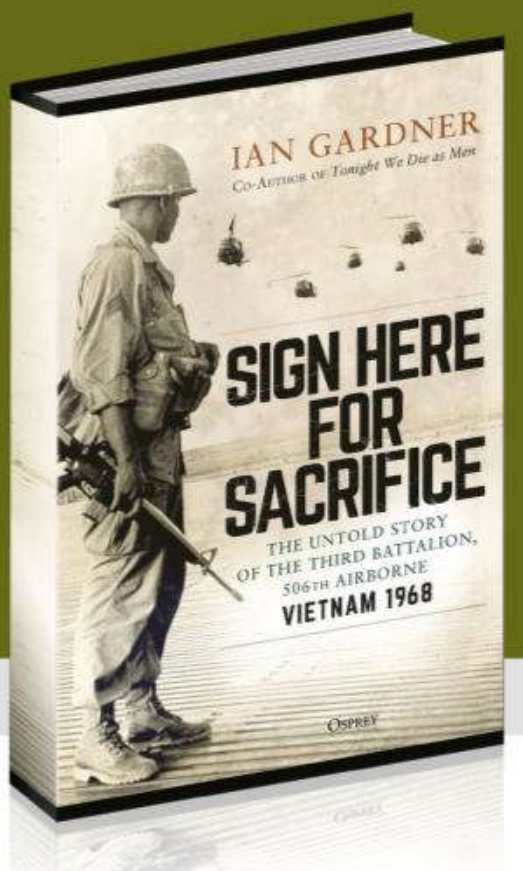

Images: "Bucky" Cox Archive, Freeman "Dee" Dallas, Jerry Gomes, Richard Pittman Archive © Mike Krawczyk, US Army

MUSEUMS & EVENTS

Discover the RAF Museum's ambitious plans for its site in the Midlands, Victorian artillery on the Isle of Wight and 75th anniversary celebrations for the Taxi Charity

Revamping the RAF Museum

Images: Royal Air Force Museum

The RAF Museum team at Cosford celebrate investment from The National Lottery Heritage Fund

***Above:** An artist's impression of the opening of the new exhibitions*

***Above, middle:** The Space Command exhibition will explore at the potential future of the RAF*

***Above, top:** This picture of the Star Object exhibition features a BAE Systems Hawk, an aircraft famously used by the Red Arrows display team*

The Royal Air Force Museum has been given a National Lottery Heritage Fund to transform its site in Shropshire

Located in Cosford, Shropshire, the Royal Air Force Museum Midlands is dedicated to the history of aviation and the RAF in particular. A non-departmental public body sponsored by the Ministry of Defence, it is a registered charity with another site at Colindale in north London.

The museum has recently announced that it has been awarded investment from The National Lottery Heritage Fund for its Inspiring Everyone: RAF Museum Midlands Development Programme. This ambitious project will deliver a major regional engagement programme, alongside a site transformation.

An immersive exhibition will explore today's RAF with a new Learning Centre that will provide bespoke facilities. A purpose-built Collections Hub will enable the Museum's stored collection to be shared with the public for the first time. The complementary development of a woodland landscape and new public realm will also encourage outdoor learning, discovery and contemplation. The project will additionally support the museum to achieve its commitment to Carbon Net Zero by 2030 by investing in sustainable technologies and operations.

To deliver the museum's vision of "inspiring everyone with the RAF story", its bold plans include the delivery of a new nationally relevant exhibition focusing on the critical role of the RAF over the past 40 years. Engaging and interactive displays will invite visitors to discover more about the RAF's mission today and how the service will need to adapt in the future. Artefacts ranging from aircraft to films will be selected with community partners, and multisensory display interpretation will be developed through co-design. By engaging audiences with wide ranging interests and backgrounds in the development process, the museum will deliver storytelling that better reflects the diverse communities across the Midlands.

The project is supported by a number of funders, including The National Lottery Heritage Fund as well as the RAF Museum's own investment. The National Lottery Heritage Fund has generously supported the RAF Museum's application for £5m at the first round towards its £22.1 million RAF Museum Midlands Development Programme. The museum will now enter into a development phase before building work commences in early 2025. It is expected to be complete by the summer of 2027.

Maggie Appleton, CEO of the Royal Air Force Museum, says: "I'd like to thank The National Lottery Heritage Fund on behalf of all our staff, volunteers and Trustees for the generous support they have given us – we could not be happier! We're one step closer to our ambitious plans becoming a reality, made possible thanks to National Lottery players. Over the coming months we will continue to work closely with our local communities to develop the project, ensuring we deliver spaces that will make a vital and positive change to people's lives across the Midlands and beyond."

For more visit: www.rafmuseum.org.uk

The Taxi Charity at 75

For three-quarters of a century the award-winning Taxi Charity has been providing free trips to commemorative and social events for British veterans

Founded in 1948, the Taxi Charity was launched by three London cab drivers who wanted to arrange days out for friends who had been injured during WWII. Run by volunteer London black taxi drivers, the charity has since supported thousands of veterans by providing free trips across the UK as well as to France and the Netherlands. This includes journeys to commemorative and social events, museums and concerts.

The ultimate accolade for the charity came in 2021 when it was awarded the Queen's Award for Voluntary Service. This award was approved by Queen Elizabeth II and is the equivalent of the MBE for charities.

Brian Heffernan, London cab driver and chairman of the Taxi Charity, says: "If funding allows, we hope to celebrate this amazing milestone not only with our traditional trips to the Netherlands, Normandy and Worthing but also with events on International Women's Day, a party in the summer and an outing with the Household Cavalry among others. To help fund these events we have launched a 75 for 75 campaign and hope that with donations we can reach our £75,000 fundraising goal."

The charity's patron, Vice-Admiral Sir Adrian Johns, adds: "As this remarkable and unique charity celebrates its 75th birthday, I pay tribute to the wonderful service it has provided for so many of this country's veterans over so many years. At its heart are the cabbies who give so freely and cheerfully of their time – long may they and the Taxi Charity continue their great work!"

Taxi Charity veterans pictured at Sword Beach, Normandy, for D-Day 75, June 2019

Some of the London black cab drivers who volunteer for the Taxi Charity

Images: The Taxi Charity for Military Veterans

For more information and to donate to the 75 for 75 campaign visit: www.taxicharity.org

Wight on target

The Needles Batteries defended the western Solent during the World Wars and are now a spectacular National Trust visitor attraction

Located above white chalk cliffs on the Isle of Wight, the Needles Batteries are two artillery forts that were built to guard the west end of the Solent. The Old Battery was constructed between 1861-63 and armed with 7-inch and 9-inch guns. A New Battery was built higher up the cliffs in 1895 and armed with 9.2-inch guns.

Both batteries were manned during the World Wars. During WWI, two ships were sunk by U-boats off the Needles, while Allied soldiers trained for D-Day nearby during WWII. During the 1950s-70s, the batteries were used to test secret British-made space rockets.

Now managed by the National Trust, the batteries are open from spring 2023. There are far-reaching views across the Solent, and Dorset can be seen on a clear day. There is also a tunnel under the cliffs that leads to a searchlight emplacement. The New Battery contains a complex of underground rooms that was a Cold War operations centre and contains models of Black Knight and Black Arrow rockets.

Visitors can eat in a 1940s-style vintage tea room or outside at picnic tables on the Parade Ground with spectacular views of the Solent.

A view of the Needles taken from the Old Battery

Images: Alamy

Cannons pictured at the Needles Batteries

For more information visit: www.nationaltrust.org.uk

WWII THIS MONTH...

MARCH 1943

To commemorate 80 years since the Second World War, **History of War** will be taking a look at some of the key events taking place during each month of the conflict

BATTLE OF THE BISMARCK SEA

Fought off what is now Papua New Guinea, the Battle of the Bismarck Sea saw American and Australian aircraft attack a Japanese convoy that was carrying soldiers to the port of Lae. The convoy consisted of eight troop transports, eight destroyers and 100 escort aircraft. The Allies shadowed the convoy before attacking with 114 bombers and 54 fighters during 2-3 March 1943.

All eight troop transports were sunk along with half of the Japanese destroyers. Over 2,890 Japanese soldiers and sailors were killed with the Allies only suffering the loss of 13 fatalities, two bombers and four fighters. This action was a disaster for the Japanese and greatly impeded their efforts to halt Allied advances in New Guinea.

Images © Alamy

LIQUIDATION OF KRAKÓW

During 13-14 March 1943, Julian Scherner, commander of the SS and police in Kraków, ordered the liquidation of the Jewish ghetto in the occupied Polish city. The ghetto had been established in 1941 when 15,000 Jews were forcibly housed in an area of Kraków that previously housed 3,000 people.

Many Jews died of hunger and disease in the ghetto, while others were shot in the street. Deportations began to concentration camps from May 1942. The March 1943 liquidation was a brutal event that destroyed the ghetto and was carried out by the notorious SS officer Amon Göth. Two-thousand Jews were transferred to Płaszów labour camp while another 2,000 were instantly murdered, with a further 3,000 being sent to Auschwitz.

Captive Jews march with bundles of possessions through Kraków during the liquidation

Allied aircraft attack a Japanese ship in the Bismarck Sea

FLIGHT OF THE METEOR

Although the RAF engineer Sir Frank Whittle patented the turbojet engine during the 1930s, it was the Luftwaffe who first used combat jets during WWII with the first flight of the Messerschmitt Me 262 in July 1942. The Allies did not respond with their own jet fighter until the introduction of the British Gloster Meteor.

Powered by two of Whittle's turbojets, the first Meteor flew from RAF Cranwell in Lincolnshire, England, on 5 March 1943. Armed with four 20mm cannons, the Meteor could reach a top speed of over 966 km/h (600mph) . However, it did not see operational service until 1944. The aircraft was not used in combat but Meteors from RAF 616 Squadron did shoot down 14 V-1 flying bombs over the UK by the end of the war.

Gloster Meteors finally saw combat during the Korean War when they were flown by the Royal Australian Air Force

KORIUKIVKA MASSACRE

During 1-2 March 1943, Nazi SS forces murdered 6,700 civilians in the Ukrainian village of Koriukivka. The massacre was retribution for a Soviet partisan attack led by Oleksiy Fedorov on the Axis garrison that was stationed in the village. Seventy-eight Axis troops, most of them Hungarian, were killed. The partisans wanted to rescue the inhabitants but the SS blocked the civilians' way out and sealed off the village.

The SS and collaborationist auxiliaries entered every house and murdered anyone they found, including women and children, while almost 1,300 buildings were burned down. Koriukivka was the largest punitive Nazi operation against civilians during WWII but its history was silenced for decades by the Soviet Union.

Frank-Walter Steinmeier, President of Germany, stands by the memorial to the victims of the massacre while a Ukrainian soldier looks on, 6 October 2021

MRS. MINIVER

At the 15th Academy Awards in Los Angeles on 4 March 1943, the American film *Mrs. Miniver* won six Oscars, including Best Picture. Based on the 1940 novel by Jan Struther, the film was a domestic drama set on the British Home Front that depicted a Kent family who learn to cope with the war.

William Wyler, the film's German-born Jewish director, later said: "I was a warmonger. I was concerned about Americans being isolationist. *Mrs. Miniver* obviously was a propaganda film." It was highly regarded by Franklin D Roosevelt and Winston Churchill, while Joseph Goebbels criticised it, saying: "There is not a single angry word spoken against Germany; nevertheless the anti-German tendency is perfectly accomplished."

Starring British and Canadian actors Greer Garson and Walter Pidgeon, Mrs. Miniver was the first WWII-themed film to win Best Picture at the Oscars

REVIEWS

Our pick of the latest military history books and films

DEVOTION

HIGHLIGHTING THE TRUE STORY OF PIONEERING AFRICAN-AMERICAN AIRMAN JESSE BROWN, THIS OFFERS A RAW TAKE ON RACISM IN THE MILITARY, WHILE NEVER CEASING TO THRILL

Director: JD Dillard Starring: Jonathan Majors, Glen Powell, Christina Jackson Released: Out now on Amazon Prime

© Alamy

While veterans, historians, writers and filmmakers continue to work towards the so-called 'Forgotten War' being forgotten no longer, there remain many tales from the fighting in 1950s Korea that deserve more recognition than they currently receive. African-American pilot Jesse Brown's incredible exploits are one such example, and his pioneering role for Black people in the American military has now been examined in *Devotion*.

The Korean War epic opens prior to the conflict, bringing together the two leads, Ensign Jesse Brown (Jonathan Majors) and his white wingman Lieutenant Tom Hudner (Glen Powell). Comparison will undoubtedly be drawn between 2022's well-received *Top Gun: Maverick* and this, Powell's second aviation movie within a year. Unlike his *Top Gun* sequel appearance, however, the trope of airman bravado has been toned down for a more nuanced performance. Nevertheless, the praise for the most versatile acting range is reserved for Majors himself. His portrayal of Brown is both awe-inspiring and heart-wrenching, particularly during one scene when, looking into a mirror, he appears to emotionally berate his reflection with racial slurs and aggressions that have come to be part of his everyday life.

With the war's outbreak the pair square off against a determined enemy on the Korean Peninsula. Though not quite as action-

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"THE MOMENTS DEDICATED TO AIR COMBAT ARE INTENSELY THRILLING AND IMMERSIVE"

packed as some viewers might like, the moments dedicated to air combat are intensely thrilling and immersive. The CGI-created engagements are almost always a success, even more so for those in it for the cockpit ride rather than minute historical details. Yet *Devotion* soars highest off the battlefield, where Majors and Powell are given space to explore the complexities of race in a military setting. **AB**

SPYING ON THE REICH

THE COLD WAR AGAINST HITLER

IN THE DARK YEARS OF THE NAZIS' RISE IN EUROPE, THE ALLIED POWERS WERE NOT QUITE AS ALIGNED AS PREVIOUSLY BELIEVED WHEN IT CAME TO ESPIONAGE

Author: RT Howard **Publisher:** Oxford University Press **Price:** £25

As its name suggests, *Spying on The Reich* looks at the role various intelligence agencies played in monitoring Nazi Germany in the build-up to World War II. Making use of previously classified documents, its author RT Howard does an admirable job of trying to piece together a coherent picture of how these agencies operated, and what they uncovered.

This is no easy task, however, mainly because the available source material is so patchy. Cobbled together from British, French, Czech, Polish and even German archives from the 1920s and 1930s, the documents cited represent only a fraction of what must be a largely lost history. One can only guess how much evidence would have been destroyed during the war, either deliberately or as a result of the fighting. And while there are some still-classified British records that may one day shed more light, it's unlikely we'll ever get a truly accurate account of a story that, by its nature, was already obfuscated.

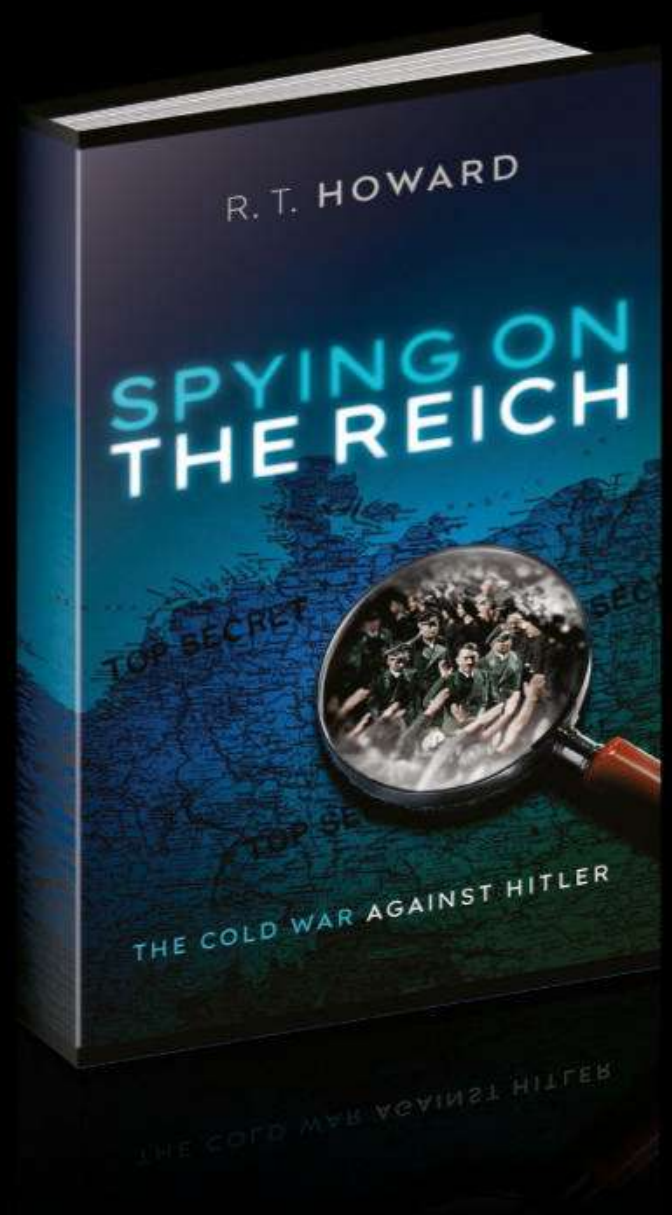
So what does this book tell us? In broadest terms, it explains how the British and French governments' official policy of appeasement towards the Third Reich was accompanied by an unofficial one of spying on it. It also explains how they were joined in this venture by the Czechoslovakian and Polish governments, which were both understandably keen to uncover Hitler's intentions as war drew closer.

Its narrative rattles along like a thriller in places, with plenty of colourful incidents and characters thrown in to keep things interesting. At one point, for example, we learn about a secret proposal to have disassembled high-speed tanks disguised as tractor parts smuggled into Germany from the US. Elsewhere, we're introduced to spies like Geoffrey Pike – an eccentric former journalist who ran a 10-man team of secret agents posing as golfers. Their aim? To gauge "the state of national opinion in Germany" by discreetly quizzing their opponents as they tackled the greens at a Frankfurt golf course!

What we also get is a real sense of how much the French, Czechs, Poles and Brits disliked and mistrusted one another. In that sense, the book's subtitle *The Cold War Against Hitler* is somewhat misleading. The world it describes is a distinctly pre-NATO one, and the lack of cooperation and communication between each country's intelligence agencies often beggars belief.

Take the case of the German Enigma code, for example. In 1939, after a decade of trying to gather intel on it, British and French agents learnt that their Polish counterparts had not only obtained an encrypting machine as early as 1929 but had even cracked a rudimentary version of its code by 1933.

The book is full of similar revelations. And while we may never get a complete picture of what the espionage campaign against pre-war Nazi Germany looked like, one thing is clear: the failure to coordinate that campaign wasn't just counterproductive, it actually emboldened Hitler. And in doing so, it encouraged him to plunge Nazi Germany – and the rest of the world – into an apocalyptic conflict. **NS**



HELPING STOP HITLER'S LUFTWAFFE

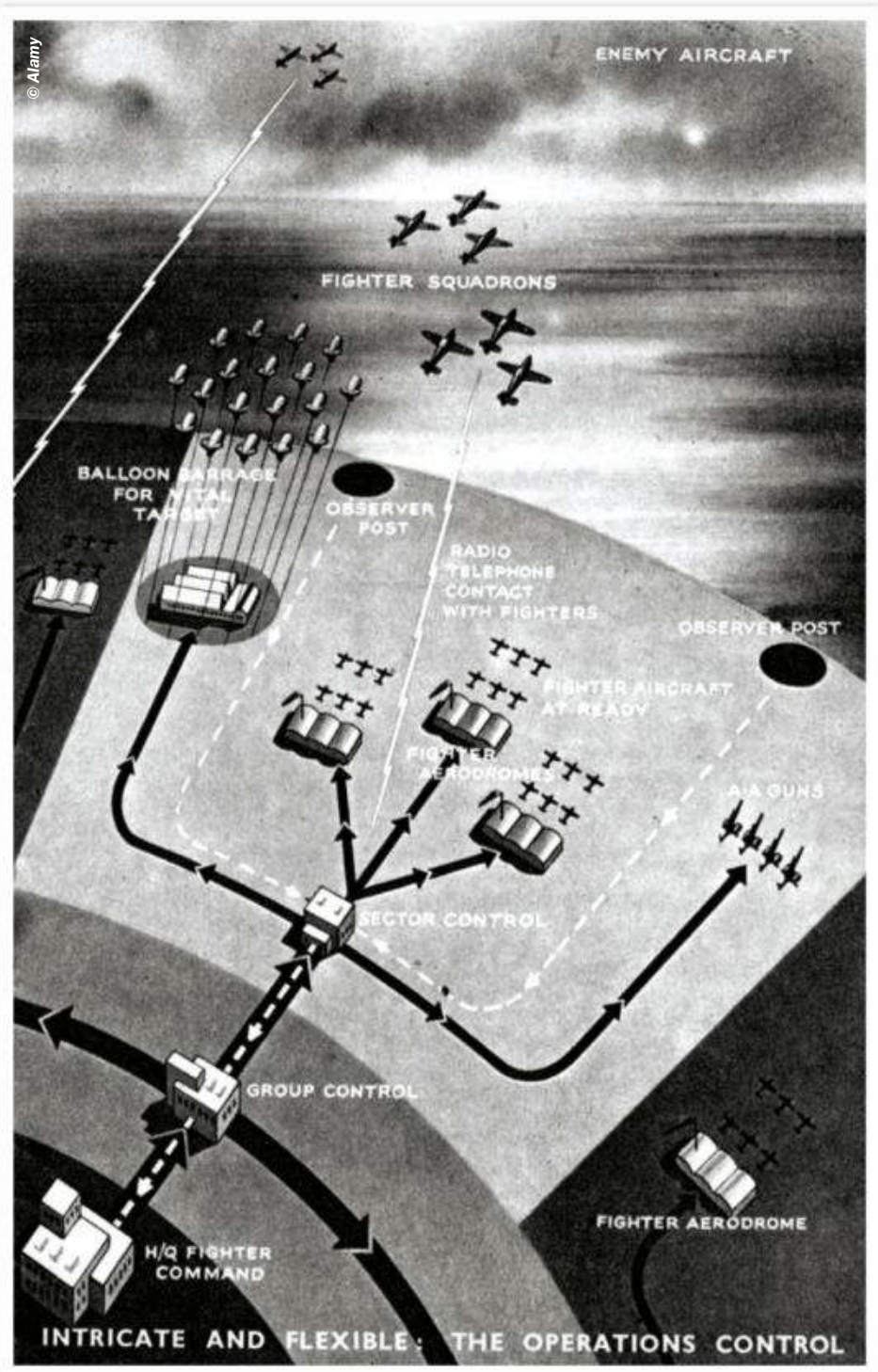
THE MEMOIRS OF AIR MARSHAL SIR ARTHUR MCDONALD SHED LIGHT ON A PIVOTAL PERIOD IN RAF HISTORY

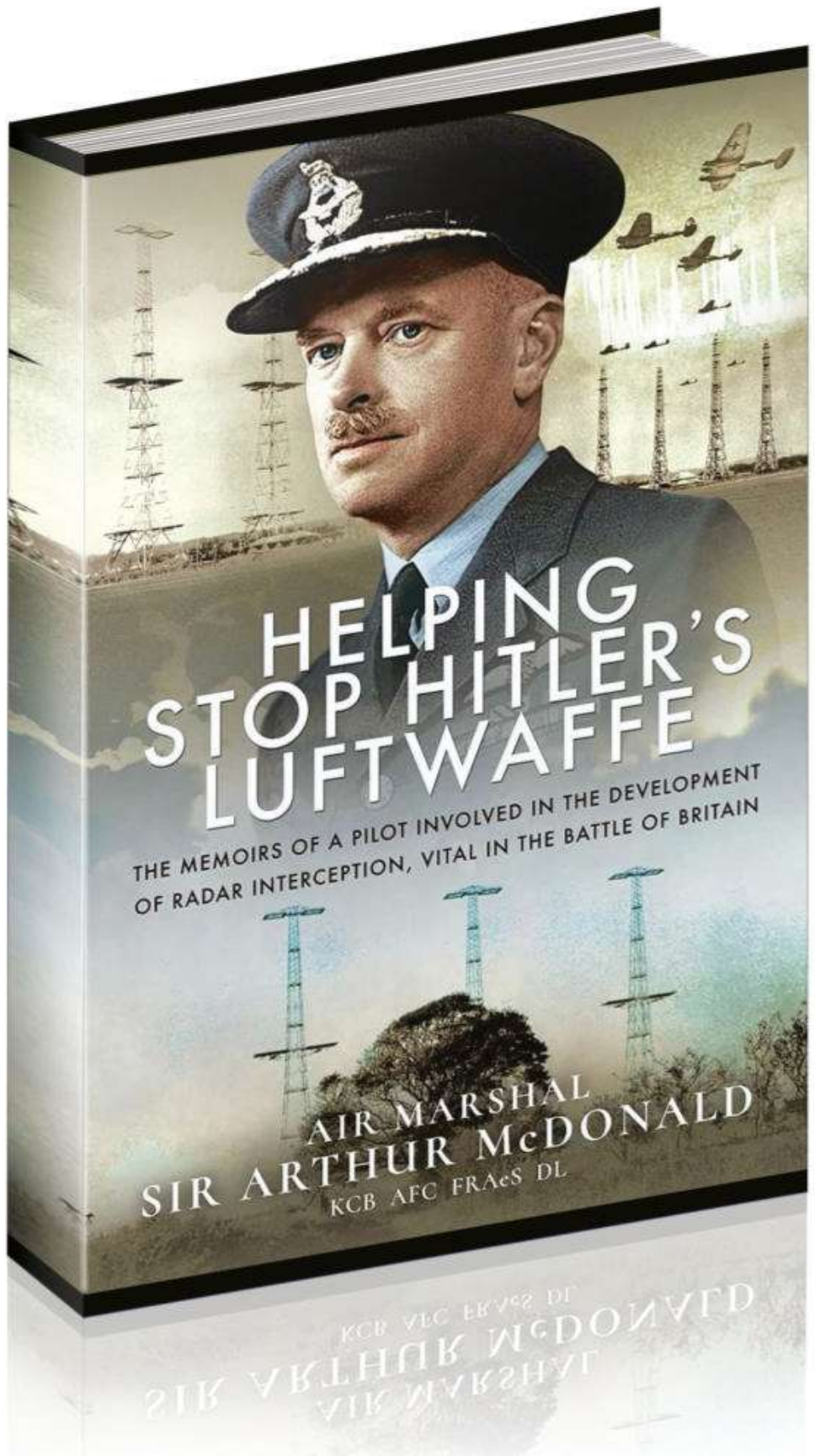
Author: Air Marshal Sir Arthur McDonald **Publisher:** Air World **Price:** £25

Sir Arthur McDonald joined the RAF on a Short Service Commission in 1924, and retired in 1962 as the air member for personnel. Along the way he served in the Far East in the 1930s, was station commander at Duxford in 1941, commanded all RAF training in India from 1943-5, and was commander-in-chief of the Pakistan Air Force from 1955-8. He was also heavily involved in the experiments of 1936-7 that developed 'Pip Squeak'. This tiny piece of equipment, later fitted to all RAF fighters, allowed ground controllers to track British formations in the air, and successfully direct them to intercept enemy forces. Without it, the Dowding System (which was crucial to victory in the Battle of Britain) would not have worked.

McDonald had an interesting and varied career, but sadly seems not to have finished dictating these memoirs before his death in 1996. They are heavily slanted towards his early service, which is fascinating, but only briefly cover his career from 1942 onwards, although the book includes his wife's letters home from Pakistan, shedding some interesting light on the social and diplomatic side of their duties. For the inter-war years he paints a rounded picture of the training, abilities and social life of a young officer in England and in Singapore. His memoirs, which encompass his early life and sailing hobbies, are readable and informative. Of special importance to anyone interested in the Battle of Britain and Fighter Command are his detailed descriptions of the aforementioned 1930s experiments that help to forge the battle-winning Dowding System. **SH**

An illustration of the Dowding System from a 1941 Air Ministry pamphlet. In the lower left is the overall control system at Fighter Command HQ at Bentley Priory





RAF pilots scramble to their Hawker Hurricanes during the Battle of Britain

© Alamy

HOW THE RAF CHANGED TACTICS TO WIN THE BATTLE OF BRITAIN

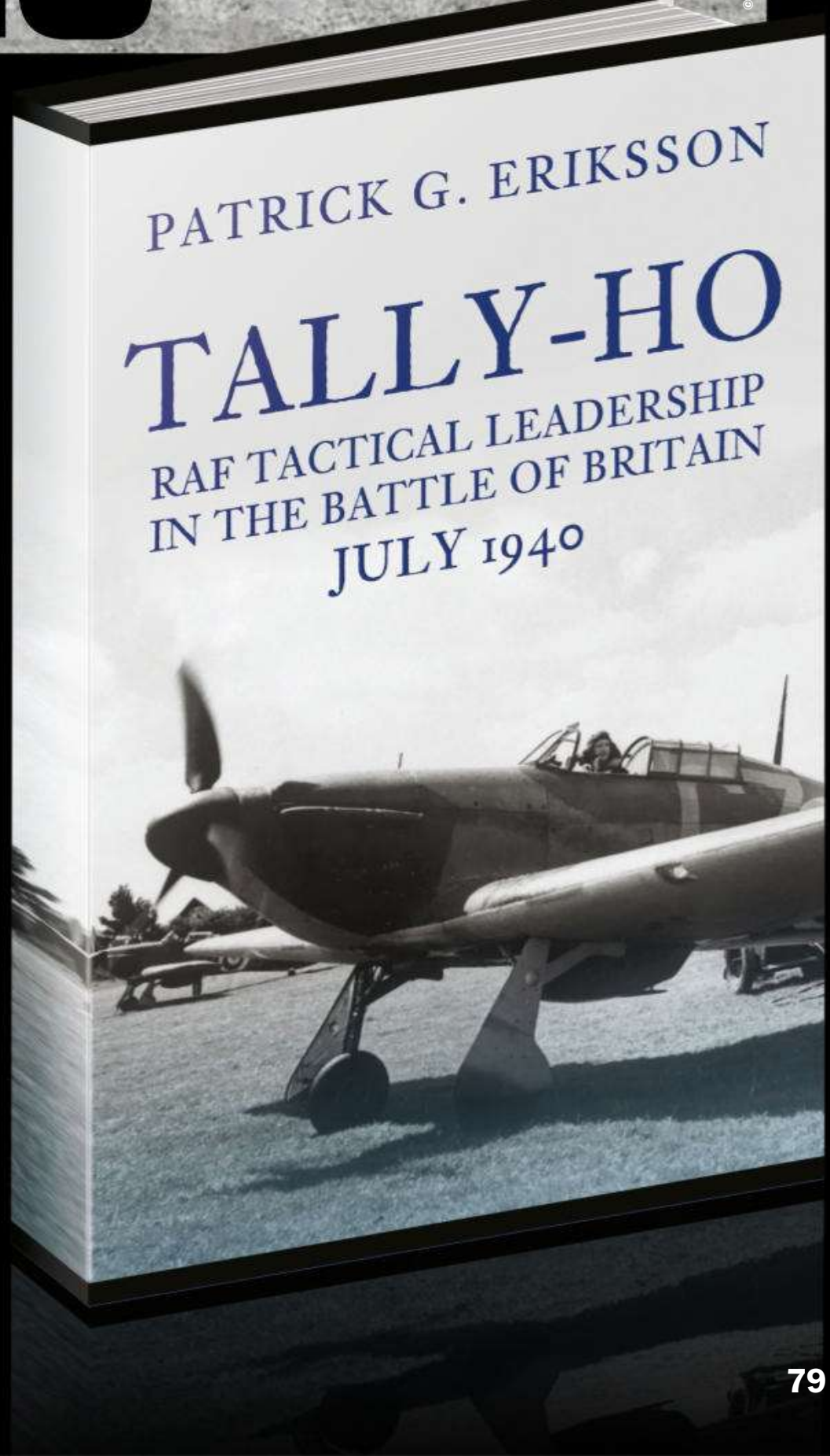
Author: Patrick G Eriksson **Publisher:** Amberley Publishing
Price: £25

Most books on the Battle of Britain discuss RAF tactics in passing, but none have ever dealt with them in this way. It is well known that RAF tactics at the start of the battle were flawed, with rigid formations, inflexible attack methods and sights set at far too long a range. These all changed during the battle, and perhaps the biggest surprise that this book has to impart is how early these lessons were learnt and changes instigated at a squadron level. As early as the first few weeks of the battle, long before the major air raids or the arrival on the front line of the Eastern European squadrons, leaders at squadron and flight level were making radical changes to standard procedures.

This book focuses exclusively on the lower-level leaders, and on the early weeks of the battle. Unlike most discussions on tactics, there are no distractions with the wing controversies or group-level friction. While the effects of some changes are extrapolated through August and the rest of the battle, the bulk of the text is formed by a chronological narrative of engagements throughout July, looking at scores of individual dogfights and how they developed. A concluding chapter provides a summary of the different changes, albeit with further examples rather than an analysis, but then the cases speak for themselves. Although tightly packed with information, the book is by no means an academic work, remaining highly readable. It is a welcome addition to the literature on the Battle of Britain. **SH**

St Paul's Cathedral remains defiant during the great fire raid of 29 December 1940

© Alamy



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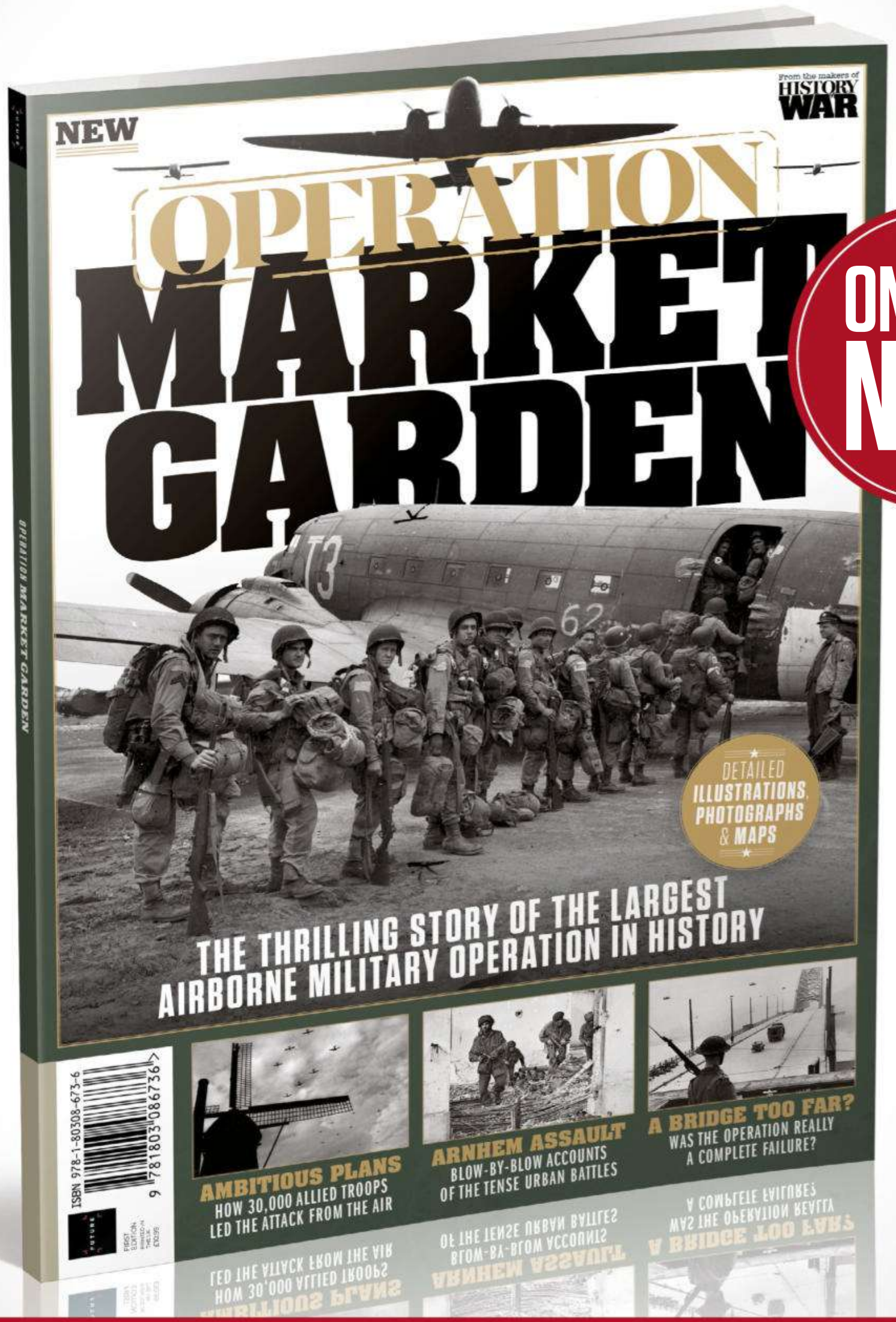

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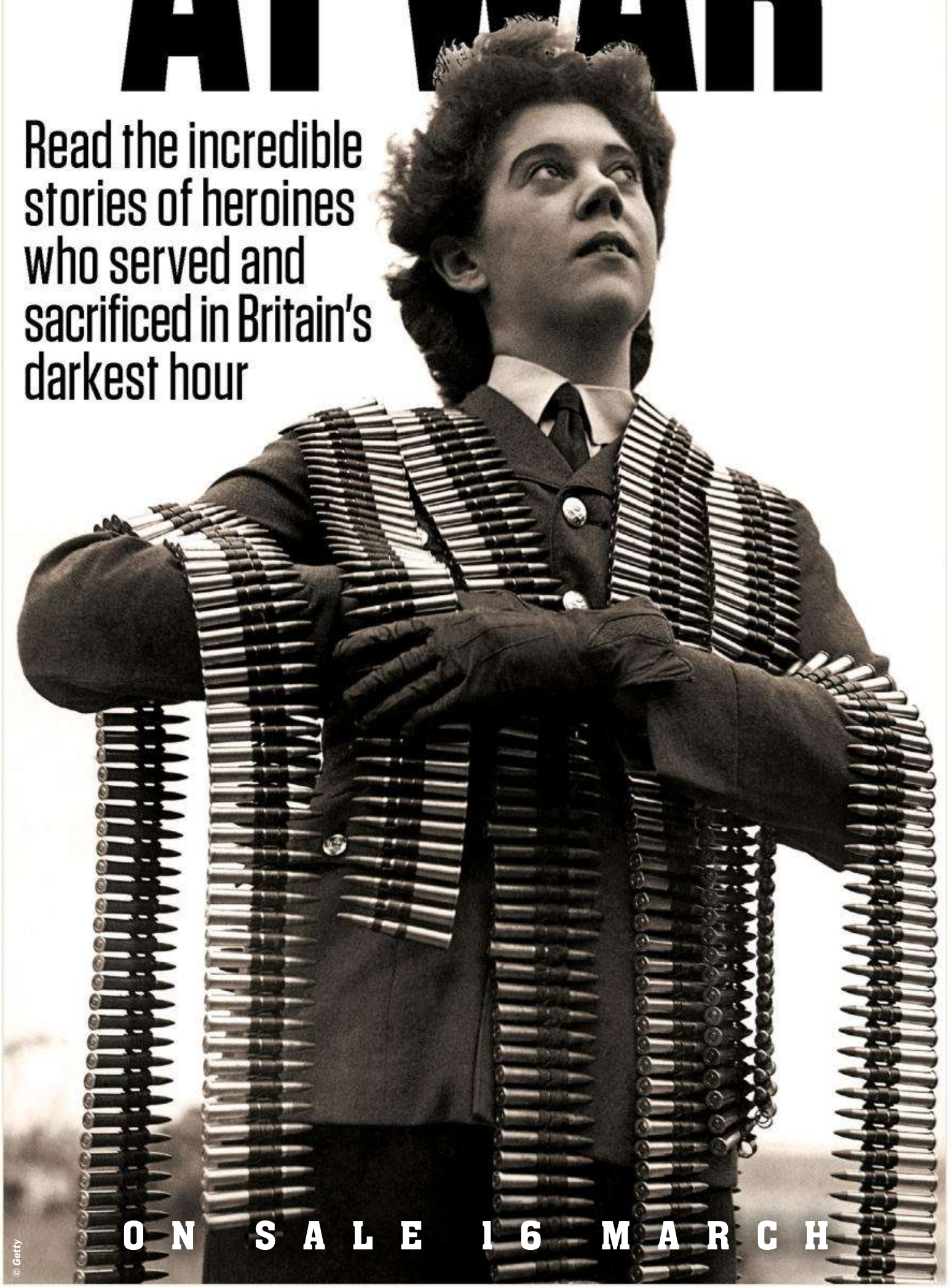

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WATERLOO LÉGION D'HONNEUR

One of Napoleon's meritocratic medals, lost by a French soldier at the fateful battle in Belgium

Established by Napoleon Bonaparte on 19 May 1802, the Légion d'honneur (Legion of Honour) is the highest order of merit in France – both military and civil. All older orders of chivalry had been replaced during the French Revolution and it was Napoleon's ambition to create a new reward based on merit rather than nobility.

Despite its revolutionary genesis, the Légion d'honneur medal did resemble older French orders. For example, the badge is similar in appearance to the 17th century Ordre de Saint-Louis. Nevertheless, the Légion was mostly patterned after a Roman legion with laurel leaves and its highest rank being an eagle.

The design for the Légion has differed since its establishment, with Napoleon's original pattern being known as 'Awards of the First [French] Empire'. In particular, the badge is inset with a Roman-style side profile of the French leader and surrounded with the inscription "Napoleon Emp. Des Français" ("Napoleon Emperor of the French").

A much-prized medal among Napoleon's soldiers, the Légion was visible throughout the First French Empire, with the emperor himself always wearing it. Recipients wore it with pride during battles, including during Napoleon's last engagement, at Waterloo. During the fighting, the medal shown here became detached from its unidentified owner and fell to the ground. It was picked up by advancing soldiers from the Allied Seventh Coalition led by the Duke of Wellington and Marshal Gebhard von Blücher. It was likely collected by a British soldier, and now resides in the National Army Museum, London.

A grenadier of Napoleon's Old Guard clutching the French tricolour and wearing his Légion d'honneur refuses to surrender at the end of the Battle of Waterloo

The seat of the Légion is the Palais de la Légion d'honneur on the left bank of the River Seine in Paris

The Waterloo Légion d'honneur is held in the collections of the National Army Museum in Chelsea, London.

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Images: Alamy, National Army Museum

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